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May 4 1911

1910

THE CANADIAN HORTICULTURIST

INDEX TO VOLUME XXXIII

Annuals— Worth Growing 58, 90 Box Packing 135, 151, 215 Cold Storage of 152, 218 Cost of Spraying 27 Crab 42, 95, 151 Industry in Ontario..... 203, 227, 252 Overproduction Improbable 276 Possibilities of Ontario Orchards .. 160 Prices in Ontario 238 Profits from Orchards 277 Stark 86 Stock for Planting 54 Summer Spraying 150 Thinning 162 Asters 90, 123, 139, 144 Azaleas 5, 29 Bees, In Orchard 83 Begonias 143 Blackberries 138, 186 British Columbia— Box Packing Methods in 11 Cherry Growing in 137 Fruit Commissioner for the West 178 Fruit Inspection 12 Gardening on Vancouver Island 89 Okanagan Valley 37, 112 Planting on Pacific Coast 4 Bulbs— Fall Planting of 259, 261 Summer Care of 164, 165 Winter Flowering 235, 257 Bunting, T. G. 201 Cacti 164 Canadian Apple Show.. 96, 179, 194, 250, 271, 285 Cherries— In B. C. 138 Pruning Of 57 Cold Storage— Construction of Warehouses 111 For Apples 218 For Fruit 217 Ice Storage on Fruit Farms 137 Pre-Cooling of Fruit for Shipment .. 179 Conventions, Reports of— American Pomological Society 149 B. C. Fruit Growers' Association ... 75 Canadian Horticultural Association .. 218 Co-Operative Fruit Growers of Ont.... 170 Niagara Fruit Growers' Asso'n .. 41, 103 Nova Scotia Fruit Growers Asso'n 12 Ontario Vegetable Growers' Asso'n. 98, 136 Ontario Fruit Growers' Asso'n... 266, 293 Ottawa Vegetable Growers' Asso'n .. 240 Ontario Horticultural Association ... 289 Quebec Pomological Society .. 13, 156, 242 Toronto Vegetable Growers' Asso'n .. 23 Western Canadian Irrigation Asso'n. 226 Western Horticultural Society 47	Co-Operation— Buying of Supplies 124 Fruit Shipments to the West ... 178, 201 In Ontario 78 Cranberries 114 Dahlias 117, 121 Destructive Insects and Pests Act .. 172, 185, 221 Editorials— Advertising Vegetables 94, 122 B. C. Inspection 10, 146 B. C. Pests 214 Boom in Ontario Fruit Lands 163 Brown-Tail Moth 122 Canadian Apple Show. 36, 146, 192, 238, 284 Decline of Apple Industry 238 Director of Experiment Station 284 Farm Orchards 94 Government Inspection 214 Grant to Horticultural Societies ... 66, 94 Horticulture in Labrador 94 Mothers' Day 163 Ontario Apple Industry 264 Provincial Gardener Needed 94 Pilfering of Fruit 10, 264 Peach Shipments to England 233 Package for Tender Fruits 146 Queensland Fruit Fly 66 Queen Victoria Park 10 Regulation of Bill Boards 192, 264 San Jose Scale Act 168, 192, 214 Shipping Experiments Needed 168 Smoke Nuisance 214 Spraying 36 Trip to England 10 Wild Flowers 122 England— Canadian Fruit in 201, 222 Rural 115 Exhibitions, Reports of— Canadian National 239 Canadian National Apple Show 285 New Brunswick Apple Show 298 Niagara District Horticultural 241 Ontario Horticultural 240, 272, 287 Royal Horticultural, England 19 Spokane Apple Show 23 Ferns 144 Fertilizers— Coal Ashes 189 Feeding House Plants 6 For Orchard and Garden 183 Flowers— An Interesting Hybrid 211 Cuttings for Indoor Culture 210 Familiar Autumn 209, 232 In England 233 Little Known Annuals 58 Sure Bloomers for Winter 33 Forget-Me-Nots 140 Frost, Protection from 207	Fruit Marks Act 220 Fruits— California vs. Ontario in Montreal ... 251 Canadian Prospects 216 Cider Industry 229 Cold Storage 11 Grape Refuse from Wine 155 In England 148 In Norfolk 255 Packing in Ontario 231 Uniform Judging 24 Fungi and Bacteria— Peach Leaf Curl 160 Yellows and Little Peach 206 Gardening— Best Seed for 97 On Vancouver Island 89 Seed Planting 63 Use of Flats in 92 Gardens— A City Back 62 In England 233, 281 In New Ontario 212 Geraniums 164 Ginseng 9, 212, 237 Gladioli 141 Gooseberries 83 Grafting— Fruit Trees 4, 54 Nursery Stock 57 Grapes— Cost of Growing 113, 138 Fall Treatment of 229 Harvesting 204 In Niagara District 37 Hedges— In Quebec 88 Prairie Windbreaks 3, 139 Heliotrope 58 Hints for Amateurs 6, 8, 32, 60, 91, 117, 142, 163, 187, 189, 207, 208, 210, 234, 256, 260, 278 Horticultural Societies— A Work for 59 Grant to 72 Toronto 149 Hyacinths 261 Hybrid Gerberas 88 Ice Storage on Fruit Farms 137 Insects— Cabbage Worm 262 On Vegetables 262, 282 On Rose Bushes 189 Red Spider on Geraniums 164 Root Maggot 213 Spruce Gall-Louse 151 Threatened Invasion 218 White Grub in Lawns 155
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June Pinks	165	Pettit, Murray	103	Smith, A. M.	265
Labrador, Horticulture in	97	Phlox, Treatment of	4	Spraying—	
Lawns—		Plant Breeding	56, 84	Arsenite of Lime	152
A Prize Winning	29	Planting—		Benefits Demonstrated	229
Care of	7, 165	Peach Trees	82	Bordeaux Mixture	39, 85
White Grub	155	Raspberries	112	Concentrated Lime-Sulphur	40
Lessons from 1910	162	Polyanthus	59	Gillett's Lye	161
Manitoba—		Poultry Among Fruits	26	Increased Profits from	126
Tree Planting in Winnipeg	31	Prince Edward Island—		Iron Arsenate	41
Western Horticultural Societies	79	Horticulture on	147	Lime-Sulphur vs. Bordeaux	25, 55, 124, 278
Melon Culture	34	Tree Planting in Charlottetown	38	Lime-Sulphur	125
Morse, S. P.	104	Private Greenhouses—Construction of	258	Self-boiled Lime-Sulphur	40
Mushrooms	166, 190	Provincial Notes—		Summer	133, 150
Nova Scotia—		British Columbia 18, 47, 73, 75, 100,		Ten Acres: Cost and Results	27
Planting in Annapolis Valley	28	128, 153, 176, 198, 247, 268		The Vineyard	26
Nursery Stock—		Manitoba 47, 48, 74, 100, 123, 132		Strawberries—	
Grafting of	57	Montreal 76, 131, 197, 224		Culture of	67
Selection of	122	New Brunswick 16, 101, 270		Marketing	136
Orchard—		Nova Scotia 16, 17, 28, 50, 77, 102, 129,		Sweet Peas—Culture of	87, 115, 258
Bees in	83	131, 175, 196, 224, 247, 270		Tariff—	
Cover Crops	184, 275	Prince Edward Island .. 15, 77, 101, 129, 270		As it Affects Florists	218
Cultivation	82	Quebec 131, 196		Duty on Plants	67
Fall Cultivation	2	Winnipeg 132		Thimbleberry Culture	230
Fertilizers	183	Pruning—		Trees—	
Moisture, Control in	135	Apple Trees	28	Banding Apple	160
Possibilities of Ontario	160	Cherries	23	Low Headed Peach	55
Planting Out	85	Comments on	105	Peach Trees on Plum Roots	44
Preparing Land for Planting	4	Currant Bushes	58	Planting in Winnipeg	31
Pruning of	58	Peach Trees	82, 84	Planting in Charlottetown	33
Small Fruits in	81	Pears	54	Protection from Frost	67
Thinning and Summer Pruning	161	Raspberries	81	Protection from Mice	278
Ornamental Grasses	140	Renewing Peach Orchard	205	Top Working Peach	82
Packing—		Root	204	Vase Method of Training	205
Apples for Export	135, 151	Roses	61	Tulips	258
Boxes vs. Barrels	186, 215	Summer	161	United States—Fruit Prospects	200
Methods in British Columbia	11	Vase Method of Training Trees	205	Vegetables—	
Ontario Fruit	231	Raspberries—		Asparagus	92, 120
Paenonies	60, 188, 273, 281	Cultivation	136	At Toronto Show	14
Peaches—		In New Brunswick	57	Cauliflower	65
In South-Western Ontario	43	Planting	112	Celery	93, 120, 167
Leaf Curl	160	Pruning	81	Celery Under Glass	9
Practical Principles for Profitable		Varieties	54	Hot House	191
Production	1	Roses—		Insect Pests	93, 118, 145
Pruning	84	Best Varieties	68	Improving Varieties	99
Renewing Orchard	205	From June to November	208	Intensive Gardening	167
Shipping to England 20, 44, 67, 202,		Growing, A Delightful Occupation ..	279	In New Ontario	212
222, 241, 266		Protection of	4, 30	Lettuce	35
Summer Spraying	133	Pruning	8, 61	Melons	34
Trees on Plum Roots	44	Rudbeckia	163	Onions	64, 65, 80, 119, 213
Pears—		San Jose Scale, in Ontario	72	Peppers	120
Dwarf	28	Shrubs—		Potatoes	35, 45, 64, 93, 119, 263
Pruning	54	Brugmansia	8, 86	Selling in Hampers	233
Shipping to Glasgow	106	Best Varieties	62	Starting Seedlings	119
Peart, H. S.	195	Desirable Varieties	139	Tomatoes in Western Home Gardens ..	64, 93
Perennials—		Japanese Lilac	116	Tomatoes	127
Worth Growing	7, 90	Philadelphus Coronarius	89	140 Acre Market Garden	167
Borders	189			Wellington, W. E.	246

The Canadian Horticulturist

Vol. XXXIII

JANUARY, 1910

No. 1

Practical Principles for Profitable Peach Production*

Charles E. Bassett, Fennville, Michigan

B EING a commercial peach grower in the Michigan fruit belt, I shall attempt to give briefly only the common principles and practices of the leading growers of our section. We attempt no fancy methods—every dollar expended and every hour's work devoted to the business is looked upon as an investment. With most of us, peach production is a "bread and butter" affair. Your own experiences with local conditions will enable you to judge just how far our methods can be followed successfully in your several orchards.

SOIL AND LOCATION

While a good loam is our ideal soil, we have good orchards on nearly all kinds of soil. We do demand, however, that all peach lands shall be well drained, both as to air and water, and, as moderate elevations tend to furnish both a good air circulation and water drainage, high or elevated lands are preferred.

PREPARATION OF THE SOIL

The ground to receive our baby trees must be well stocked in advance with suitable food to give them a vigorous start. Plowing under clover or other nitrogenous crops, before setting the trees, furnishes humus, which is especially valuable in making the ground spongy—capable of holding large quantities of water.

VARIETIES

The choice of varieties is largely a local matter. Select those which do best in your locality and which supply the demands of your market. The large plantings of peach in Georgia, Texas, etc., have caused us to discard the early varieties, especially the clings. In our section the best commercial orchards include such kinds as the Yellow St. John, Engle's Mammoth, Conklin, Fitzgerald, Elberta, Kalamazoo, New Prolific, Smock and Salway—all yellow varieties. The Champion is one of the leading white kinds, but our market calls for large, high-colored, yellow peaches. Such kinds as the Barnard, Crosby and Gold Drop are excellent in quality, but are too small, under ordinary cultivation, to be wanted by our buyers. Despite its poor quality, the size, color and ship-

ping ability of the Elberta, make it the leading market peach.

CULTIVATION

Our main object being quick and large returns, we do our utmost to force a strong, sound growth from the start by intensive cultivation *early* in the season. Corn is commonly grown the first two seasons between the trees, the loss of fertility occasioned by the feeding of the corn being partly balanced by the corn's shade to the trees from the scalding rays of the sun. The trees are headed low—not over eighteen inches from the ground—and this calls for special tools in cultivating. The extension disc harrow and the extension fine tooth drag are some of the best tools after the second

Ensures Success

I would not be without THE CANADIAN HORTICULTURIST for twice the price of subscription. I do a little work in my garden in my leisure time, and I find a great many helpful hints in its pages to ensure success in this work.—W. E. Seery, Fredericton N. B.

year, when the trees are given the whole of the ground. Cultivation must be kept up each week to save soil moisture and make more plant food available by bringing the small particles of soil in contact with the air.

PRUNING AND THINNING

Just as a fond parent corrects in his infant child any faults that may appear, so the true lover of trees, from the very first season, rubs off any buds that appear where a limb or twig is not desired, and he thus forms a correct head. A common mistake is to leave the forming of the head of the tree until it is three or four years old, when good sized limbs must be cut off, leaving large scars that are hard to heal and which often leave a weakness. Allowing unnecessary limbs to grow is also a great waste of plant energy. In fact our former methods of horticulture seem to have been based upon the principles of *forestry* rather than upon those of *fruit* production. The engineer who would attempt to run a ten horse-power engine with a five horse-power boiler would be

no more lacking in judgment than is the fruit grower who permits his tree to over-balance the root system that is called upon to sustain it. Build up that root system by continuous and intelligent feeding and then restrict the labor of the tree by severe and annual pruning and thinning. Prune so as to open the tops, so that God's free sunshine may reach all of the fruits and so paint upon their cheeks those beautiful colors, which are so eagerly sought after by the purchasers of our products.

We prune our bearing orchards during the dormant period, preferably in March, after the hardest freezes are over. Many get good results by spring or even summer pruning, and one of the most profitable orchards I have ever seen has always been pruned in the fall! However, I am inclined to attribute the fine results in the latter case to the *severity* of the pruning, rather than to the *time* when it was done. Much of the thinning can be done by severe pruning, but even after that has been done the expense of picking off the surplus peaches by hand will often be considerable. This thinning is essential and *must be done before the pit hardens*. The production of seed is a most exhaustive process and the trees must be given all possible relief, by reducing the number of fruits. Stronger and longer lived trees, larger sized fruits and doubled profits will thereby result.

DISEASES AND INSECTS

Curl leaf develops during cool, moist weather, but a thorough spraying of the dormant trees in March with a solution of two pounds of copper sulphate (blue vitriol) to fifty gallons (wine measure) of water is a sure preventive. Since we have been using lime-sulphur to destroy the San Jose scale on our trees, we find that it is equally as effective in controlling the leaf curl.

Yellows and "little peach" are deadly diseases of unknown origin. There is no known cure and the only safe course is to cut down and destroy by fire all diseased trees *as soon as discovered*. These diseases can only in that way be held in check, but "experimenting" with these diseases has cost many a grower his entire orchard.

The annual "grubbing" of the base of the trees, to destroy the borer, is also

*A synopsis of an address given at convention of Ontario Fruit Growers' Association, Toronto, last November.

necessary—sometimes twice in the season. Many a sick looking peach tree will upon examination be found to be nearly girdled by the peach borer, whose work can be discovered by the gummy substance that exudes from the injured roots. Mounding the earth up around the tree and then removing the earth after the period of egg laying has passed is a method of some value and many report good results from applying gas tar to the base of the tree, thus shutting out the borer. The plum curculio is often quite destructive to the peach, but clean cultivation will generally destroy the pupa.

FERTILIZERS

Stable manure is all right to secure rapid wood growth, but its continued use in large quantities produces wood that is soft and tender—easily injured by the cold winters. However in our exclusive fruit section, we do not have enough stable manure on our farms to make it possible for us to do much of this kind of "damage." Fertilizers that are rich in potash and phosphoric acid are most valuable, such as unleached wood ashes and ground bone. We find great profit from the use of commercial fertilizers, the foundation of which is usually muriate of potash and ground bone from the packing houses.

COVER CROPS

About the middle or last of August we sow some cover crop in the orchards. Oats and barley have been very good, but the sand vetch is now most popular, as it makes a mammoth growth and also adds considerable nitrogen to the soil, it belonging to the class of legumes. When it first begins to grow, this cover crop acts as a "robber" crop, taking up the soil moisture and available fertility at a time when we want the trees to stop growing and to ripen their new wood. Later this cover crop acts as a blanket, to hold the leaves and snow, preventing bare spots on exposed knolls and the consequent deep freezing and root injury. In the spring this cover crop furnishes considerable humus to be turned under and thus improve the mechanical condition of the soil. Clovers would be even better for this purpose, as they furnish considerable plant food, but they have to be left too late in the spring if they get much growth, and they are then robbing the trees of food and moisture at the time when the trees should be making their best growth. We also find it difficult to get a catch of clover under large bearing trees.

Finally, adopt the most intensive methods to produce the largest and handsomest specimens, pick and pack them carefully and as near ripe as your market will permit, pack honestly so that you can guarantee every package, market through some co-operative system that will eliminate as many middle men as possible and, above all things, be "in

love with your job" and "Johnny on the spot," and you will be safe in looking for a neat balance on the right side of the ledger at the end of each season.

Fall Cultivation

J. Arthur Johnson, Grimsby, Ont.

I read the article on fall cultivation by Mr. R. W. Starr of Wolfville, N. S., that appeared in the November CANADIAN HORTICULTURIST, and agree with him in some points, but in others

the need of it on sandy land, as the ground falls close together when plowing and after a good rain the ground is pretty well united. The extra expense of cultivation also is saved. But I think this method of cultivation might be well applied to heavy ground which usually breaks up in lumps when being plowed.

I agree with Mr. Starr as to leaving the fall plowing until the leaves have fallen. This year in our orchard after the leaves had fallen the ground was completely covered. This also acts as



A Business Peach Tree—Low-Headed to Facilitate Labor and Open to the Sunlight

The tree illustrated is ideal in shape, according to Mr. J. W. Smith, of Winona, Ont., upon whose farm it is growing. It is four years old and is seven feet high and twelve feet wide. Trees in this orchard averaged five baskets each last season. At the last convention of the Ontario Fruit Growers' Association, Mr. Smith strongly advocated the low-heading of peach trees, by which system all the peaches can be picked without ladders. By this method, there should be No. 1 peaches at bottom of the tree as well as at the top. Pruning is done chiefly in winter. The limbs are thinned out to allow sunlight to enter and the air to circulate freely. Mr. Smith, who stands in the illustration, is one of the most successful peach growers in the Niagara district.

I differ. His method of fall plowing from five to six inches deep, I cannot agree with.

In the first place plowing six inches deep brings the air space too close to the main roots of the trees. In a great many of the peach orchards of the Niagara district, the main roots are not much more than six inches from the surface of the ground; therefore, it would leave the roots too much exposed. My second and most important reason is that plowing to the depth of six inches would cut off all the fibrous roots which are the main feeders and thereby weaken the trees. My method is to allow the fibrous roots to come close to the surface so that they may get stronger nourishment and also the benefit of all the showers.

As to the cultivation on fall plowing, I have never practised it, as I never saw

a root mulch and helps to add humus to the ground as well as to destroy all the insects and pests that may be hibernating near the surface.

I agree, also, as to the time of putting on manure and fertilizers. The fall is the best time, as the summer seasons are very dry and the fertilizers cannot give good results in dry weather. My method is to spread the manure on the ground in the fall and to plow it under to a depth of three inches. This gives the trees a chance to start a vigorous growth in early spring and to produce a good crop of first class fruit and still leave the tree in healthy condition for the coming winter.

It is said that soda-bordeaux and Paris green will kill poison ivy—an excellent proof of its danger to fruit trees.

Windbreaks for the Prairie

Norman M. Ross, Chief of Tree Planting Division, Indian Head, Sask.

FROM the horticulturists' point of view, windbreaks on the prairie are an absolute necessity. It is true that even in the open a considerable amount of success may be attained in the growing of many of the coarser vegetables and bush fruits, but without a certain amount of shelter it is absolutely impossible to look for profitable return from the garden, or to hope for any degree of satisfaction in the growing of flowers and the more tender flowering shrubs.

There is probably no part of Canada, where finer vegetables, flowers and small fruits can be grown, having consideration for the comparative shortness of the growing season, than in the prairie provinces. We are at present only beginning to realize the horticultural possibilities of the plains. It is not so very many years since the general impression was held that even trees could not be grown. Now we hear reports from scattered points throughout the west of the successful maturing of standard apples. The most successful grower, Mr. A. P. Stevenson, of Dunston, Man., has several hundred trees in bearing in his orchards. Several farmers in southern Manitoba have also had success and now we hear from points further west—from Saskatoon in Saskatchewan and Edmonton in Alberta—that apples have been brought to maturity.

In travelling over the country one sees well laid out city parks and farm homesteads surrounded by well kept lawns and ornamental grounds where a few years ago the "old timers" would have scoffed at the idea of such planting as a waste of time and money. We know that, provided good windbreaks are established, the soil properly worked and suitable varieties naturally adapted to local conditions, selected for cultivation, the horticulturist has abundant scope for his energies with every assurance of success. A discussion as to the best varieties for windbreaks, the manner of laying them out to best advantage, the respective advantages of wide belts or sin-

gle rows, with numerous other points, can hardly be gone into fully in a short article.

The main windbreak round a farm steading should naturally be composed of tall growing varieties of trees. What might be termed the secondary windbreaks—that is, for protecting the vegetable and flower beds and lawns inside the main belt—might better be of lower growing shrubby varieties.

Where the main belt is to consist of several rows—that is, from ten to twenty or more in width—it has been found best to plant a mixture of varieties, the following being most usually recommended: Manitoba maple, green ash, acute-leaf willow, American elm, white birch and Dakota cottonwood. This main belt should be placed well back from the buildings and ample room allowed for subsequent development.

SHELTERS FOR GARDENS

In planning shelters for gardens it must be remembered that after the trees attain some height it will not be possible to grow flowers and vegetables within ten to fifteen feet of the trees unless plenty of water is available for irrigation, which is not a usual condition on the prairies. For a single row making tall growth and effective shelter within three or four years the acute-leaf willow is most satisfactory. Cuttings should be set about one foot apart and as the break grows up the tips of the side branches may be cut or trimmed about twice during the season. This soon forms a very thick break most suitable for a vegetable garden.

Where one already has a good main belt, but also desires small breaks within, we should advise the *Caragana arborescens* as being most easily propagated and generally suitable for a medium-sized hedge. This plant stands trimming well and makes an extremely thick hedge. It may be kept down to about four feet high or if allowed to grow will reach a height of ten to twelve feet in a very few years. The common

lilac is also very suitable, though not making such a rapid growth as the *Caragana*.

VALUE OF EVERGREENS

The evergreen conifers will make the most ideal windbreaks, but they are rather slow to become established and would not be of much benefit as shelter until probably eight or nine years after planting, presuming that plants about four years old or twelve inches to eighteen inches are used to set out. However, the enormous advantage of the evergreen varieties over the deciduous kinds of the same height, as windbreaks, cannot be gainsaid. It would be well worth while for any settler on the prairies to set out such varieties as white spruce, Scotch pine and Jack pine where young stock can possibly be obtained. The white spruce is the best variety. It is a native and hardy. The growth is compact and the lower limbs remain green to the ground in later years.

The Scotch pine appears hardy and rather quicker growing than the white spruce, though in later years it becomes straggly and the lower limbs die off. The native Jack pines have the advantage of being very hardy and fairly rapid growers, but will not compare with the white spruce either in appearance or in effectiveness for shelter purposes.

In growing evergreens on the prairies however, experience would indicate that to get the best results one must first provide some other shelter. This shelter must be sufficient to hold snow on the young conifers for the first two or three winters, but must not be so close to them as to overshadow or check their growth in any way.

In any plan then for permanent shelter belts on a farm or around gardens, it would be advisable to make arrangements for planting evergreens with a view to their being, eventually, the final windbreaks; the faster growing deciduous varieties being gradually cut out as their usefulness decreases, or as they commence to take up too much room,



View at Naraery Station, Indian Head, Saskatchewan, in Spring of 1905



From Same Viewpoint in August, 1907

thus threatening to crowd out the more valuable evergreens or rob other neighboring plants of food and moisture.

Planting on Pacific Coast

W. J. L. Hamilton, South Salt Spring, B.C.

Whilst apple trees will grow well under almost any conditions in British Columbia, it pays to plant them in properly prepared soil. Land cannot be plowed or subsoiled too deeply for the apple. The best conditions are probably

Preparing Land for Planting

In the November CANADIAN HORTICULTURIST Mr. W. E. Corman of Stoney Creek, Ont., contributed a few notes on this subject. Mr. Corman gives further information in the following: "Subsoiling fifteen inches deep allows the roots to spread out at a depth that the frost will not penetrate to injure the trees and it allows the feed, that goes down, to be more evenly distributed to the roots and the

in fact, I have heard, though I cannot quite vouch for the truth of it, that roses are so much hardier the deeper their roots go. The hose will keep off all kinds of bugs better than insecticides, and keep the bushes at the same time, fresh, green and healthy. Some kinds of h. p. roses do better than others in different soils and situations but these the grower will have to find out for himself.

Plants are like children. They are very responsive to proper treatment; if you love them, love them practically and naturally, not in a sickly, sentimental sort of way, and you will have your expectations more closely realized.

Wall Flowers

I have had some wall flowers since the summer of 1908 but they do not bloom. I put them out last summer. They were healthy but produced no flowers. Please give some information about wall flowers.—S.P., Stayner, Ont.

It is very difficult to keep wall flowers over for a winter and flower them successfully the following season. If the plants were healthy and vigorous last spring when you planted them out, they should have flowered towards the end of summer. I have succeeded best with wall flowers by sowing the seed indoors early in February or March, growing the plants on inside in small pots or boxes and planting them out about the middle of May. If the plants were not in flower in the fall before frost, they could be dug then, put into pots or boxes where they will flower during early winter in the window. I have wintered old plants over in a cold frame by covering them with leaves and putting some boards over the leaves, and planting them out the following spring. Much depends upon how they come through the winter.—Wm. Hunt.

Treatment of Phlox

I have several clumps of phlox which come up nicely in the spring but when the buds come the plants seem to dry up and the flowers never open. The soil is rather sandy but we always dig in plenty of well rotted manure and we keep the plants watered. How should these plants be grown?—Mrs. L.G.K., Owen Sound, Ont.

It is quite possible that the soil the phlox is in is too sandy. A clay loam suits phlox best. If the clumps spoken of have not been divided recently, I should recommend dividing them early next spring and planting them in a fresh place. A clump or division having ten or twelve shoots of growth would do well for transplanting. The end of April or early in May is the best time for this. If the leaves turn yellow in the summer it is likely caused by an attack of red spider, a small insect which attacks the under side of the leaves. A good spraying with cold water every day in very hot weather will prevent attacks of red spider and materially help the plants.—Wm. Hunt.



One of British Columbia's Displays at the National Apple Show, Spokane, Washington, in November

obtained by deeply plowing, breaking up, and thoroughly cultivating a good thrifty two year's red clover sod.

Thus prepared in the fall, the trees, always yearlings for choice, can be set out about November on the Pacific coast, and will be well established by next spring, when the slowly decaying clover will supply the nitrogen needed to start thrifty growth.

Grafting Fruit Trees

Please give some information about top grafting fruit trees. Tell how to select and when to get the scions, and how to keep them. I understand the fitting fairly well. Give also formula for a good grafting wax.—J. S., Egmondville, Ont.

Take the scions from one year's growth on trees of the variety that is to be propagated. It is best to take them before real cold weather sets in, but they may be taken at any time. Keep them in the cellar buried in the sand. Select scions from trees of known worth. The ingredients for a good grafting wax are: Resin, four parts; beeswax, two parts; tallow, one part; by weight. Watch THE CANADIAN HORTICULTURIST for an article on this subject that will appear soon.

From six to eight tons of straw are required to mulch an acre of strawberries properly.

drought does not have the same effect on the fruit in a dry season. Plant the trees twenty feet apart each way, which allows the roots to spread and not run into the roots of other trees.

"Sow buckwheat about the first of June and disc it down about the first of August and let it go until the following spring and repeat the same. This buckwheat forms a blanket for the roots and keeps the ground from freezing to any great depth and it holds the buds back in the spring until all danger of frost is over."

Protection of Roses

A. H. Ewing, Woodstock, Ont.

There is a great deal of common sense in what "Amateur" says on this subject in the November CANADIAN HORTICULTURIST. I have never done more than put branches in amongst the roses (hybrid perpetuals) in order to gather the snow over them and, though the growth always gets frozen back more or less according to the severity of the winter or the amount of snow that falls, they have never been frozen back lower down than was necessary to trim them in the spring.

I can't quite agree with "Amateur" with regard to soil. Roses will do very much better and produce much finer bloom in a clayey soil than in a sandy soil and the deeper the soil is the better;

How to Grow and Manage Azaleas

C. M. Bezzo, Berlin, Ontario

TO see a good specimen of azalea during the looming period is to determine at once to possess one. This accounts for the fact that, notwithstanding the reputation this plant has of being hard to grow, thousands are bought every year for the conservatory and the window garden. True, it is somewhat fastidious regarding what it eats and the way it drinks, but humor it in these little peculiarities and it becomes at once one of the most docile and accommodating plants to be found in the whole floral kingdom.

The azalea demands a soil of peat or wood-dirt. Peat is that soil which is found in swamps, the accumulations of hundreds of years of decayed vegetation. A good compost, or soil for this plant is made as follows: One quart of peat, wood dirt or leaf mold; one quart of loam made from rotten sods or good garden loam; one pint of clean sharp sand; one pint of thoroughly rotted cow or sheep manure; one ounce of hardwood ashes. We have given the component parts in their order of preference. Any further substitutions are not advisable. The manure used must be thoroughly decayed (about two or three years old is the best), and it may be allowed to dry, when it will pulverize and mix more readily with the other materials. Clay, hard soil or fresh manures are things the azalea will not tolerate; and unless the proper materials are obtainable much time and labor as well as disappointment will be saved by throwing the plant away. Persons living in the cities and larger towns may find it somewhat difficult to gather for themselves peat, wood dirt and leaf mold; but nearly all these, together with the various fertilizers, can be ob-

tained from almost any dealer in florist's supplies.

POTTING

Having prepared the potting soil the next thing is to pot the plant. If the plant has come by express and has the ball of earth intact about the roots and is dry, stand it in a saucer of water and let it absorb all the water it can. By this process you are able to gauge how much water it has taken up. Note carefully the quantity of water the roots and plant will absorb, as this knowledge will be of considerable value when watering in the future.

Select a pot about one size larger (not more) than the plant has been growing in. Into this put about one inch of draining material. For this purpose charcoal is good, as it helps to keep the soil from souring, but pieces of broken crock, coal cinders or pebbles may be used. See that it is coarse enough to leave crevices through which the water may freely pass. A thin layer of sphagnum or moss, the kind used by florists, spread over the top of this material will prevent the earth washing down and blocking the drainage.

This careful preparation for draining off all surplus water is absolutely necessary. Owing to the peculiar root formation of this plant and the kind of soil in which it grows it is very liable to root unless all surplus water is drained away. Where good drainage has not been provided for, the water becomes stagnant and the earth sour, generating a low poison which is distasteful to some plants and sure death to others. Among the latter is the azalea.

Having made provision for the drainage, place in sufficient soil to bring the plant to the proper height in the pot, al-

lowing for about half an inch of space between the finished soil and the top of the pot. Press the soil down firmly.

If the plant has the old earth about the roots, place it in the centre of the pot and fill in the space between the plant and the pot with the soil prepared for the purpose. The soil in this space must be packed quite firmly, else the water when applied will glide away from the roots into this loose earth and out through the drainage and be lost. Pack it firmly and raise it slightly at the outer edge, leaving a depression in the centre which will retain the water until it has a chance to penetrate to the roots of the plant.

If the plants are of the mailing size and with the roots denuded of earth, sift the earth carefully about them, pouring water on occasionally to settle. After potting set it away for about a week in a dark closet. Bring it gradually to the light and in about a week from the time it is brought from the closet it will be ready for direct sunshine.

WATERING

The root formation of the azalea is somewhat peculiar and it is because of this peculiarity that so many failures are recorded. Unlike most other plants, its roots are a mass of fine fibrous threads all matted and tangled together, and the difficulty is to get water to penetrate this mass. Many deaths from thirst might be recorded and yet the owners water them every day; the water passing off between the pot and the ball of roots, leaving the inside quite as dry as before.

While watering from the bottom is not a method which we would recommend generally, the azalea is such an



A Corner of Mount Pleasant Cemetery, Toronto, that was "Transformed Last Season from Unsightliness to a Place of Beauty. This cemetery is one of the best kept in Canada. The landscape effects are a credit to its superintendent, Mr. W. H. Foord.

exceptionally peculiar plant in this respect that its whole treatment must be an exception to the general rule. Fill the saucer of the pot full of water. If the plant takes it all up, replenish, and repeat until it refuses to take up any more.

If at any time you are unable to get the soil to hold a sufficient quantity of water by pouring it on the top or feeding from the bottom to convince you that it is thoroughly saturated, set the pot right over the top in a basin of water and let it soak. With good drainage, if the soil is allowed to dry before another watering, these soakings will not hurt it, but they should not be given except as a last resort.

Do not use cold water. Let it set in the sun until it becomes lukewarm, or

add sufficient hot water to make it the desired temperature. Tepid water is not only better for the plant, but it will penetrate the soil about the roots more readily than when cold.

Use rain water; never water the azalea with water from the well or hydrant if it is hard. Lime in any quantity is injurious to this plant and the water of some wells contains a sufficient quantity of lime to kill the azalea in a short time. Do not water too often. The roots of this plant must not be kept wet or they will rot. When watering do it well, then give no more until the plant begins to get thirsty.

Space will not allow further discussion in this issue. Next time, pointers on the periods of growing, blooming and resting will be given.

Feeding House Plants

By "Planta"

IT should never be forgotten that plants need food just the same as the different members of the animal kingdom, and especially is this the case with house plants, which have to be for various reasons kept in as small pots as possible for as long a time as possible.

In the first place, a soil should be used that will retain its feeding properties for some time, and for this purpose bone meal should be used when potting. This dissolves into plant food very gradually and therefore gives a supply for a considerable period. The finer the bone the quicker the action.

The soil used for many plants requiring a loose open soil will soon become depleted owing to water easily draining through, carrying with it the plant food for these and the former when they show they need it other methods can be employed. Occasionally a little household ammonia in rain water can be used as a stimulant, but care must be taken not to give it too strong and only to a growing plant in good health.

There are also several kinds of plant food sold by seedsmen. These are done up in packets generally with full directions and have been used with varied success. Never give a plant liquid manure or stimulant, however, when the soil is dry.

Florists, owing to the quantity of plants they have to water, are mostly obliged to water with "hard" water, but soft rain water is better and most dwelling houses have a handy supply. Tepid (not hot) water is better than cold water.

A very good plan of feeding plants is to soak them in a tub of water with some liquid manure mixed with it. It makes a little more trouble, but it thoroughly impregnates the soil with plant food. Put enough liquid made from old rotted cow manure into a tub of rain water to make it the color of ordinary

tea. Plunge the pots into this to just below the rim and let them soak there for an hour or two; then take them out and allow to drain for a short time before putting into their proper places. They will not need watering again probably for two or three days or even more, according to the temperature of the room they are in. It is a good thing to have some of this liquid manure always on tap if the material for making it is available.

Strong growing plants can take up much more food and take it oftener than the weaker ones; therefore, be careful not to overfeed the weaker ones.

As a general rule, pot plants into larger pots in the spring or during summer. Palms will grow in small pots for years if judiciously fed.

Do not forget that plants want air, both leaves and roots. To air the roots loosen the top soil frequently with an old fork or something of the kind. Don't expose the plants to cold drafts. An occasional washing or hosing of the leaves will keep the leaves free from dust and insects.

Do not on every occasion stand your plants out in the rain. Thousands of plants have caught their death of cold through this, and no amount of feeding will bring them back to health again when they begin to look sick from this cause. With all these injunctions use plenty of judgment, common sense and love.

A few cacti add interest to the collection of house plants.

An occasional stirring of the surface soil in flower pots is beneficial.

Do not allow the house plants to suffer from lack of water. Some kinds in sunny windows need water every day.

A Two-year-old Garden

The accompanying illustration of an aster bed was secured last season in the garden of Mr. W. A. Greenslade, Peterboro. The bed contained nearly 300 asters all grown from seed saved by Mr. Greenslade.

In the same garden, there were thirty-three varieties of sweet peas ranging in



Asters Grown at Home from Seed

color from white varieties to black Michael. Many gladioli, dahlias, roses and other things combined to make the garden most attractive. Mr. Greenslade starts most of his seeds of annuals in a hotbed and in the house.

Vegetables have a prominent place in this garden. Last summer, Mr. Greenslade picked his first tomatoes on July 31. He had a large yield of the Ponderosa variety, the specimens averaging nearly fourteen ounces each and one of them weighed over seventeen ounces. The tomato seed is started in the hotbed and transplanted to the open ground three feet apart. The plants are trained on stakes. His first potatoes were harvested on July 22. This is the second year for this garden and Mr. Greenslade states that he received his knowledge of how to grow these things successfully from THE CANADIAN HORTICULTURIST.

Liatris and Hibiscus

If seeds of Liatris or Blazing Star are sown in September will they produce flowering plants the following season? Will *Hibiscus Moscheutos* sown in July bloom next season?—M. W., London, Ont.

Neither of the plants mentioned will produce much flowering result next season, although a few flowers may be obtained. Both plants being of a perennial nature, will grow and flower for several years after once becoming established. From the fact that both of them produce their flowers rather late in the season, it may be possible to get a few flowers the first season after sowing. Much depends in this respect upon the growth and culture.—Wm. Hunt.

Some Herbaceous Perennials Worth Growing*

THE following notes on herbaceous perennials are made upon plants growing at the Central Experimental Farm, Ottawa: There are some very desirable herbaceous perennials which are new or not well known in this country. A very desirable plant is the wild monk's-hood (*Aconitum uncinatum*: Syn. *A. Volubile*). This monk's-hood is more or less climbing in its habit of growth and reaches a height of five to six feet. The flowers are violet in color and quite attractive. It blooms at Ottawa from late in July to late in September. Another plant belonging to the Campanulaceæ of graceful habit and attractive flowers is the gland bellflower (*Adenophora Potanini*). It is a native of Turkestan, grows to a height of two to three and one-half feet, and blooms at Ottawa from late in July to late in September. The flowers are pale, bluish violet suffused with white. The hardy marguerites, or Shasta daisies, as they are sometimes called, are very desirable plants, both for effect outdoors and for cutting. New varieties are being introduced from year to year. Among the most desirable tested at Ottawa are *Chrysanthemum lacustre* Top Sawyer; *C. maximum elegans*; *C. maximum* Duchess of Abercorn; *C. maximum splendens*. These have flowers much resembling the ox-eye daisy but much larger, some of the flowers being three inches or more across. They bloom from July to October.

The autumn blooming Heleniums are well known, but those which bloom in early summer are not so well known. One of the finest plants of recent introduction is *Helenium Bolanderi* Golden Queen. It grows two feet high and blooms from early in July to near the middle of October. The flower is deep golden yellow with a dark centre. *Helenium Hoopesii* is another American species blooming in June which is not well known but which is a very desirable perennial. The flowers are orange yellow.

The Hemerocallis or day lily is a very popular old-fashioned flower, and few of the newer varieties are better than the common *Hemerocallis flava*, but for variety and length of blooming season some others should be planted. Among those of comparatively recent introduction is *H. aurantiaca major* reported last year. One of the finest of the newer varieties is one of American origin called Florham, with a large golden yellow flower. Some of the best of recent introduction in Great Britain

and Europe are: Flamid, with orange flowers; Gold Dust, orange, bronze on outside; Orange Man, bright orange; and Sovereign, orange yellow, bronze on outside. All said to be of hybrid origin. These bloom during the month of June. A very late blooming day lily and quite distinct is *H. citrina* with canary yellow flowers. This blooms in August and September.

Among the most graceful and attractive herbaceous perennials introduced in recent years are *Heuchera brizoides* and its varieties. *Heuchera brizoides* is a hybrid between *H. sanguinea* and *Tiarella purpurea*, introduced by V. Lemoine, Nancy, France. The plants are much more graceful than *H. sanguinea* and far freer bloomers. A collection of these was planted at the Experimental Farm, Ottawa, in 1909. Those which have bloomed in other years are *H. brizoides* with rosy pink flowers paler at the base, and *H. brizoides gracilima*, of somewhat the same color but more graceful in habit than the former. They bloom from June to September.

Although *Incarvillea Delavayi* has been out for some years, comparatively few know this beautiful flower yet. The plant grows from two to two and one-half feet high and the flowers, which are much like gloxinias in appearance, are borne on a stalk coming from the ground. The flowers are rosy magenta brown and yellow in the throat. The blooming season is June to July 13 at Ottawa. *I. grandiflora*, somewhat like the above, has not proven so hardy.

The marsh mallows or rose mallows, *Hibiscus Moscheutos*, are perennials which should be better known. They are hardy, and being from five to six feet in height, their large flowers are seen to good effect in late summer. They bloom from early in August to October.

Several of the *Thalictrums* or meadow rue are effective border plants, but one of the newer and most effective species is *Thalictrum Delavayi*, a native of China. It grows from two to three feet in height and the pendulous flowers are lilac and purple in color.

The Trollius or globe flower is one of the most attractive spring flowering perennials, yet it is seldom seen in Canadian gardens. Some of the newer varieties are very fine. Two of the best of these are *Trollius europaeus* Orange Globe, with semi-double, orange yellow flowers, and *T. asiaticus plenus* (*T. japonicus plenus*) with rich, deep orange, semi-double flowers.

The Front Lawn

E. Morden, Niagara Falls, Ont.

To fill the narrow lawn space that we often find in urban situations with scattered shrubbery is a very common mistake. A mass of shrubbery and vines banked up against the dwelling or its veranda with its resultant rotten wood and dampness is often objectionable.

The vine-clad cottage is poetic and perhaps allowable if the cottage is antiquated and ugly. Where much dust prevails the erection of a nearby screen separate from the house itself is a good idea.

Where narrow lawns exist two neighbors may plant a contiguous shrubbery with good results; where lawns are wider, as is commonly the case in rural localities, one owner can mass a shrubbery-group at the side of the lawn, and thus leave a free open space in front where the lawn mower and mayhap lawn tennis may feel at home.

The illustration on this page will make my plan clearer. Here we have a large variety of shrubs interspersed with rare



An Interesting Mixed Border of Shrubby, Conifers, Perennial and Annual Flowers
Home and lawn of Mr. Jas. C. Morden, Niagara Falls South, Ont.

*Extract from the report of the novelty committee (Mr. W. T. Macoun, Prof. H. L. Hutt and Miss M. E. Blacklock) of the Ontario Horticultural Association, made at the Toronto convention last November. The portions of the report that mentioned annuals, cannas, gladioli and other plants, will appear in a later issue.

evergreens interesting at all seasons of the year. Room is found for annual, biennial and perennial flowers along the front of the shrubbery and all of these are cared for with a very moderate amount of labor.

In the shrubbery may be noticed a Wisconsin weeping willow. These hardy willows fill a long-felt want. It will be seen in the shrubbery a short distance to the right of the street maple which is partly shown near the sidewalk.

This view is a rural one, and the concrete sidewalk in front is rather exceptional. It is on Lundy's Lane, quite near to Niagara Falls.

A Specimen Brugmansia

S. J. Jackson, Bowmanville, Ont.

The specimen of *Brugmansia* illustrated is about nine years old and stands nine feet high. When photographed it had forty-seven blossoms measuring about twelve inches long and six inches in diameter at the bell end. When in bloom this plant requires an abundance of water and must have good drainage.

We have a number of these plants and we give them a period of rest from the first of December to the first of April. We winter them in a cellar with dahlias, cannas, etc., and give them a little water occasionally to keep them from drying out.

The *Brugmansia* can be grown from seed or cuttings. It should be re-potted in spring. The plant illustrated is in a tub about the size of a candy pail. The *brugmansia* is very highly perfumed in the evening.

The Formal Garden.—To mention the formal garden to some people is as a red rag to a Spanish bull. They are up and at you in a moment. Yet the formal garden is gaining way in England—not the stiff Italian garden, which is nine-tenths architecture, and one-tenth flowers and plants; but the principles of the formal garden, as such, are gaining way. Evidence of this meets us in much of the recent work that has been done by the best exponents of garden design at the present day.—*Journal of Horticulture*, London, Eng.

After the bulb flowers indoors begin to show, the pots may stand in a saucer of water all the time.

What Amateurs Can Do in January

GUARD the window plants against frost. Keep them away from the glass on cold nights. In rooms where the temperature becomes very low at night there is danger of plants on window sills being nipped. This can be prevented either by moving them to a warmer part of the room or by placing sheets of newspapers between them and the glass. For most window plants a temperature of sixty-five to seventy degrees Fahrenheit during the day, and fifty to fifty-five at night will give best results.

House plants kept in rooms that are not ventilated occasionally will not do well. Open the window or door for a little while on fine sunny days, but avoid direct drafts on the plants.



A *Brugmansia* That Produced Forty Seven Blooms

Grown by Mr. S. J. Jackson, Bowmanville, Ontario

Most window plants do best in an atmosphere that is fairly moist. Keep a pan of water on the radiator or stove to keep the air moist. Occasionally sprinkle the foliage of the plants with clean water.

Apply fertilizers in small quantities. Use liquid manure or commercial fertilizers. Further information on this point and on other factors in window gardening is given in an article on page 6.

If aphids appear on the plants apply a strong solution of tobacco water. Red spiders can be kept in control by sprinkling the foliage with water. Scales on the leaves may be washed off with strong soap suds. Mealy bugs may be brushed off with a small brush or piece of stick. Keep the plants growing strongly and in a healthy condition, and insect pests will not be so troublesome, as they are on plants that are weak and sickly.

Pot bulbs should be grown in a tem-

perature that is as nearly uniform as possible. To secure uniformity, take them away from the window at night.

Try some annuals indoors in boxes and plant drooping kinds about the edges to hide the sides.

Commence now growing plants for Easter. Among the useful ones for the purpose are hortensia, greenhouse spirea and freesia. Buy the roots and bulbs at once and pot them. Keep the hortensia and spirea in a cool place for a few weeks and then bring them into warmth. It is not necessary to keep the freesia in a cool and dark place. Unlike other bulbs, it may be placed in the light almost as soon as potted.

Commence planning for next season's outdoor garden. Send to the seedsmen and nurserymen for their catalogues. Make your selections and order early. Plan the garden on paper. First measure the plot that is available and draw a diagram to scale. You will find the work interesting and it will enable you to secure better results than if you were to leave the planning until time for planting.

During warm days this month look for eggs and cocoons of insects on the trees and bushes. Destroy all that you find. Large numbers of pests can be killed in this way.

During odd times make stakes for use next spring. Paint them and have them ready for use when wanted.

There is still time to mulch the strawberry bed if the work has been neglected. Freezing will not hurt them and the snow will be a benefit, but be sure and apply the covering as soon as you can. It is the alternate thawing and freezing in spring that does the damage.

Pruning Moss Roses

What is the best time and the best way to prune moss roses? They produce lots of wood and few roses. The ground is a clay loam.—W.N., Chatham, Ont.

The best time to prune moss roses, or any of the hardy roses, is early in the spring as soon as the growth buds show signs of starting (usually about the first week in April). The time of pruning depends upon the season. Moss roses should be pruned by cutting away or shortening the last season's growth, leaving about three or four inches of the base of the growth made last year. With strong growth or canes of new growth starting from the bottom near the root, these can be cut back to about twelve or fifteen inches in length. All weak growth should be removed if the bushes are very dense and thick with growth. To secure good roses a growth of good strong wood is necessary.

The chief requirements of cacti are ample drainage and a sandy soil.

Celery Under Glass*

B. H. Thorne, Wooster, Ohio

A FEW years ago I began to think that the time would come when there would be an overproduction of lettuce and began to experiment in a small way with several vegetables in order to find out whether they would be suitable for greenhouse crops and to get some knowledge of them before trying them on anything like a large scale. Celery is one of these vegetables and although I have not yet passed from the experimental stage to the commercial stage, I believe that it can be made a very profitable crop when used as a spring crop to come into the market in April, May or early June.

Young celery plants grow slowly during the winter and in order to get plants for planting in March or April, the seed must be sown in November or early December. It takes two or three weeks for the seed to come up and the seedlings grow so slowly that they are hardly ready for the first transplanting before February.

I sow the seed in flats, cover lightly with soil and cover the flats with glass until germinated. They stay in the flats until about an inch high and then are transplanted about two inches apart into other flats or a bed. When the plants get about five inches high or before they get at all spindly they are transplanted again into their permanent quarters.

The kind of plant wanted in your market will be the ruling factor in deciding the distance apart to plant in the beds. Six inches apart will give a plant twenty to twenty-four inches high with narrow stems; seven inches, a somewhat shorter plant, and heavier stems; and eight inches, a still shorter plant and heavier stems. But then six inches gives four plants per square foot, seven inches three plants, and eight inches only two and one-fourth plants per square foot.

VARIETIES

The varieties tried have been Golden Self-Blanching, Snow White and White Plume. Plume is not to be considered, at least in warm weather, because it makes too many seed stalks and there is too great a variation in the size of the plants. There is certainly great room for improvement in this variety before it can be used in the greenhouse. G. S. Blanching makes excellent stalks but grows slowly and is subject to heart rot. Snow White has been the best so far; it grows about as fast and as tall as Plume and has not made any seed stalks or rotted at the heart.

Although both Snow White and W. Plume have made a fair percentage of

trimmed stalks seven inches in circumference and twenty-four inches high to the tip of the leaves at six inches apart, I believe seven inches is a better distance to plant.

Celery grows quite fast in the spring months after it gets a start and if the blanching is begun soon enough it can be ready for market in about eight weeks. To grow quickly celery needs frequent heavy waterings.

BLANCHING

Blanching is the most critical part of celery growing under glass. It must begin as soon as possible for each day's delay in getting the blanching papers on means that the crop occupies the bed that much longer and may even delay the crop until the home grown outdoor comes in.

The stalks refuse absolutely to blanch by the new celery culture meth-

as the average outdoor celery and much better than muck-grown celery.

PRICES

As to the price of greenhouse celery I can't say from actual sales but, as it is of better quality, finer looking and fresher than any shipped from the south in May and June, I see no reason why it should not bring fifteen to twenty cents per square foot. In fact, I have heard of one grower who got ten cents per stalk, planted seven by nine inches.

INSECTS AND DISEASES

As to the diseases of celery, Prof. Selby tells me that it is subject to the rosette but, I believe, not so much as lettuce. With the exception of heart rot I have seen no diseases. Celery seems to be a favorite with red spider but when quickly grown and blanched spider does very little damage.



Field Grown Celery Blanched with Paper, Showing Method of Wrapping and Tying
Illustration reproduced from *Market Growers Journal*.

od of close planting. The blanching must begin when it is time for the first merchantable stem to appear.

The blanching is done with two sets of papers, one about six inches high and the last twelve or fourteen inches. The papers are made up in the workroom of a smooth, hard, dark colored paper that dries quickly after being wet. The papers are made so that the edges overlap about half way round and large enough to put the hand and arm through and tied with one and two strings. In putting on the paper it is slipped over the hand and arm, the plant grasped with this hand and the paper pulled down over the plant with the other hand. The plant is blanched while it grows and is ready for market as soon as large enough. The papers, if cared for, can be used several times.

A greenhouse celery plant is certainly good to look at and is pure white from tip to base. The quality is as good

When to Plant Ginseng

Should ginseng be planted in fall or spring?—W.S., Goderich, Ont.

Spring planting should not be attempted by the inexperienced beginner, but it is not impossible. It could be done probably during the week immediately after the ground thaws out, but the time is too short and the soil is then full of water and in a very bad condition to work. When the ground is free of frost and the hot sun warms the soil it starts the root into action. It is one of the first plants to break through the ground in the spring. Ginseng should be planted in fall.

The solution of the market problem in growing vegetables is largely a matter of pluck and energy.

Factory shavings make fairly good insulating material for cold storage buildings, but they should be dry.

*A paper read at the convention of the Greenhouse Vegetable Growers' Association of America, at Ashtabula, Ohio, in October.

The Canadian Horticulturist

Published by The Horticultural
Publishing Company, Limited
PETERBORO, ONTARIO



The Only Horticultural Magazine
in the Dominion

OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO
QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD
ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director
A. B. CUTTING, B.S.A., Editor

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription price in Canada and Great Britain, 60 cents a year; two years, \$1.00. For United States and local subscriptions in Peterboro, (not called for at the Post Office) 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than \$1.00.

4. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising Rates quoted on application. Copy received up to the 15th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

6. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT.

Since the subscription price of The Canadian Horticulturist was reduced from \$1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with Dec., 1908. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Some months, including the sample copies, from 10,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

January, 1908.....	7,650	January, 1909.....	9,456
February, 1908.....	7,824	February, 1909.....	9,310
March, 1908.....	8,056	March, 1909.....	9,405
April, 1908.....	8,250	April, 1909.....	9,482
May, 1908.....	8,573	May, 1909.....	9,172
June, 1908.....	8,840	June, 1909.....	8,891
July, 1908.....	9,015	July, 1909.....	8,447
August, 1908.....	9,070	August, 1909.....	8,570
September, 1908.....	9,121	September, 1909.....	8,605
October, 1908.....	9,215	October, 1909.....	8,675
November, 1908.....	9,323	November, 1909.....	8,750
December, 1908.....	9,400	December, 1909.....	8,875
Total for the year.....	104,337	Total for the year.....	107,638

Average each issue in 1907, 6,627

" " " " 1908, 8,695

" " " " 1909, 8,970

Sworn detailed statements will be mailed upon application.

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EDITORIAL

ARRANGE A TRIP TO ENGLAND

In one of the weekly reports of the Dominion Department of Trade and Commerce, Mr. W. A. MacKinnon, Canadian Trade Commissioner, Birmingham, England, suggested that Canadian fruit growers would do well to follow the example of their brethren on the continent, by organizing a touring party to visit the chief ports and markets of Great Britain. The suggestion should receive serious consideration. Every year a few of our most enterprising growers visit the Old Country individually to learn the situation there at first hand. Would it not be better for these men to arrange to go in a body? A number of growers together would receive greater attention from the British dealers and others interested than would be accorded to them as individuals. They would be able to gain more valuable information in this way than they could if travelling alone. Such a deputation would leave an impression on the trade in Great Britain that no individual, no matter how large his interests, could give. Intending visitors to the Old Country in the interests of our fruit industry, should consider the advisability of taking this step.

Should this suggestion meet with approval, THE CANADIAN HORTICULTURIST would willingly act as a medium of arrangement. Let us hear from those interested.

THE PILFERING OF FRUIT

Since our editorial reference in last issue to the pilfering of fruit by express company employees, we have received additional letters giving specific instances. These will be published later. We would be glad to receive still further evidence. Names of contributors will not be published without permission.

The express companies, if they would, could locate the guilty employees. Inspection of packages at time of delivery with a system of receipts between growers, agents and messengers on trains, easily furnishes a means of detection. For instance, when fruit packages are received in good condition by a messenger and receipted for by him and reach the transfer messenger or the agent at destination, showing evidence of pilfering, there is only one person guilty and that is the messenger. The importance of this responsibility should be impressed upon the express companies by the Railway Commissioners.

BRITISH COLUMBIA INSPECTION

There was some talk last spring that the British Columbia government intended to establish a fumigation station at Golden, for the benefit of growers who desired to import eastern stock. That this should be done has been pointed out in these columns many times. Our contention is backed up by scores of letters from British Columbia and by the editorial backing of the inland press of that province. The general and unbiased feeling in the matter is summed up in the following extract from a letter received from Mr. R. R. Bruce, Wilmer: "Golden is the natural place for it, as it is the eastern gateway of British Columbia. With the present fumigation station at the coast, there would then be the minimum of delay to any fruit stock coming in either from the east or from the west. The establishment of such a station

would tend to a more rigid fumigation."

THE CANADIAN HORTICULTURIST has been accused of advocating the establishment of such a station in the interests of eastern nurserymen. While we recognize that eastern nurseries would benefit, we are championing the interests of the fruit growers of British Columbia, hundreds of whom are readers of this magazine. We are not concerned about where the growers purchase their stock, but feel that those that desire to purchase in the east should be given a fair chance to do so with some degree of certainty about the stock arriving in good condition. Inspection stations at both Vancouver and Golden would give all a fair chance and there would be no discrimination.

Another feature of British Columbia inspection methods is the double and triple fumigation that stock is subjected to. This is referred to at greater length in a letter from Mr. M. J. Henry that appears page 12 of this issue. The provincial government would do great service to its fruit industry by remedying these matters before the opening of next season.

QUEEN VICTORIA PARK

It is announced that the services of a skilled gardener, who was trained in Kew Gardens, London, England, and was more recently in the service of Cornell University, have been secured for Queen Victoria Park at Niagara Falls. This is welcome news. The need for the appointment could scarcely be greater. It is fourteen months since this was first brought to the notice of the public of Ontario by THE CANADIAN HORTICULTURIST. Our early editorials were attacked by interested parties at Niagara Falls. Our readers will now see, by the action of the park commissioners, that the stand we took was warranted. Now that something definite has been done by the park commissioners to bring about an improvement it is our desire to lend all assistance in our power to the furtherance of the work.

The appointee comes well recommended. It is expected that he will be able to show great improvements in the horticultural and landscape features of the park. There is room for careful thought and lots of work. Queen Victoria Park can be made the best park on the continent.

Ignorance begets the medicine man. That civilization has advanced little in this respect from the days of the red-skin to the present age of white man supremacy is evidenced each year by something new in the "tree-doctor" line being launched upon the farmer and fruit grower. Lo, the poor farmer! The Halifax Chronicle reports that a Boston firm landed one of the usual "Yankee nutmegs" on the farmers of that province last season. "A patent 'Katch All' was sold, warranted to remain moist and sticky and capable of stopping every slug that touched it. After about \$4,000 of it had been delivered, the farmer woke up to the fact that while it might make fair roofing, or act as a substitute for bitulithic paving, it offered no obstruction to the crawling canker."

Fruit growers in Ontario and their sons should attend the short course in fruit growing to be held at the Ontario Agricultural College, Guelph, January 25 to February 5. It promises to be of unusual value. The demonstrations in apple packing and in the preparation of spraying materials will be a distinct advance on last year's work on these subjects, and in addition the officers expect to have both hand and power spraying outfits in operation before the

class. The course is planned very largely for apple growers, both present and prospective, and no interested person can afford to miss the up-to-date information which will be brought forward in lectures and demonstration. Tender fruits come in for their share of attention, however, and there are besides, many subjects which are of interest to all fruit growers. Opportunities of this kind should not be missed.

In spite of the fact that some eastern apples sent this season to British Columbia were condemned and destroyed for disease, Ontario apples sold in Vancouver at \$10.00 a barrel. How much did the Ontario growers get out of it?

PUBLISHERS' DESK

In keeping with our policy of constant advancement, a new cover design has been adopted for THE CANADIAN HORTICULTURIST. It is hoped that our readers will appreciate the change. This design will be carried throughout the year with a different illustration each issue. Instead of running descriptions beneath these illustrations, as heretofore, descriptive matter relating to same will appear, when necessary, in this column. The first item in the index of each issue also will tell something about the cover cuts.

Our February issue will contain articles on spraying fruit trees and on spraying materials. Short letters from our readers on their experiences in spraying will be welcomed. Tell your results with some particular spray mixture and give directions for its application. Send photographs of spraying scenes.

Plan to Visit Great Britain

Since page 10 went to press, a letter has been received from Canadian Trade Commissioner MacKinnon, Birmingham, that contains a formal invitation to Canadian fruit growers to visit England. This strengthens the suggestion that is made in the editorial on page 10, and is a further inducement for united action in this matter. Our fruit men will appreciate this courteous invitation and those that can do so should make definite arrangements for the trip as soon as possible. Mr. MacKinnon's letter is as follows:

"The following is an extract from a letter just received from the secretary of the National Fruit Growers' Federation:—

"I am instructed by the Council of the Federation to offer to Canadian fruit growers a most cordial invitation to visit some of the chief fruit plantations of England. If this visit is arranged, and my Council sincerely hope it will be, they will feel greatly honored at this opportunity of welcoming Canadian fruit growers."

"This follows a suggestion made in one of my reports to the Department of Trade and Commerce, published in the weekly report of August 30, to the effect that Canadian fruit growers ought to imitate the example of those on the continent and visit the ports and markets of this country. A prominent member of the Federation brought the matter to the notice of the president, who himself proposed to his Council that an official invitation be sent, so that if such a party is organized, they should visit not only the markets, but one at least of the chief fruit growing districts."

Box Packing Methods in British Columbia

W. J. L. Hamilton, South Salt Spring, Vancouver Island

SUCH a thing as an apple barrel is unknown in British Columbia as we find the box method of packing much more satisfactory. But the art of packing apples in boxes is not learned in a day. As a matter of fact, skilled apple packers are few and far between at the present time in this province. We have only one size of box, namely ten by eleven by twenty inches inside measurement; so it requires some skill and experience to pack without slackness, all the varied sizes to which the different varieties grow.

I do not propose to enlarge on the methods of packing. These are admirably treated of in a bulletin issued by the Dairy and Cold Storage Commissioner at Ottawa, which I can confidently recommend to my readers.

I desire to call the attention of beginners to some points in which care should be exercised if best prices are to be realised. "Fancy" apples should be all perfect specimens of nearly even size, just enough difference in size between the ends and middle of the box to allow a "crowning" or rise towards the middle of the box of three-quarters of an inch to ensure that, when the apples settle into place, no slackness will appear, as nothing tends to bruise fruit more than any slackness of pack. Only new clean boxes should be used and these should be lined with paper provided for the purpose.

It is advisable to wrap each apple separately in wrapping paper of the proper size, and the apples should be suitably arranged in layers packed so tightly that standing the box on end gently will not disarrange the completed layer. It is well to note on the end of the box, amongst the rest of the information called for, the number of apples the box contains.

The diagonal pack is the most desirable, next to that, the "offset", whilst the straight pack (rows running parallel to the sides of the box) is the least satisfactory. This is because each apple rests directly on the top of the one below it, so that it is much more likely to be bruised injuriously than if, as in the other forms of pack, it nested into the spaces between the fruit of the layers below.

All "fancy" grade apples should not only be perfect in form and color, but they should be free from disease, worm marks, or bruises, and they should be good specimens of the variety as regards size. The greatest care should be exercised in packing, so that not only are the very best prices realised but the credit of the province as a quality fruit producer is maintained. A little patriotism of this sort is not only commendable but profitable.

In packing other grades, like care should be maintained and in every case the grading should be somewhat better than the legal definition of it that is called for. Many will object that this leaves too many culls. This is true, especially in orchards that have not been properly sprayed and cared for. I am however, trying to introduce in British Columbia, a scheme whereby our fruit will come into its own and realize the price its high quality merits, which it has never done yet.

One point of this scheme is the evaporating of the culls, whereby they and the No. 3 grade (which has no right to damage the good name of the province by being on the market at all) can be evaporated and sold at a higher price than can be obtained for the No. 3 as boxed at present.

Other points in this scheme are, the combination of all the scattered co-operative

fruit growers' associations under one head, preferably the British Columbia Government; the erection of cold storage plants at central points to receive the fruit once it is boxed, where it can be held for top prices; the establishment of agents throughout the world to sell this fruit for us; and, above all, the provision of a school to instruct the young men of the province, who desire it, in the art of grading and boxing fruit so that they can go out into the fruit districts as officials of the co-operative associations to train local packers and to affix a government brand on all boxes according to their quality, as a guarantee to the purchasers that they get what they pay for.

Cold Storage of Fruits

A portion of an address given by Mr. J. A. Ruddick, Dairy and Cold Storage Commissioner, Ottawa, before the Ontario Fruit Growers' Association at its last convention, appeared in the December issue of THE CANADIAN HORTICULTURIST. The second instalment is published herewith. Mr. Ruddick's remarks on the pre-cooling of fruit and on the construction of cold storage warehouses and cooling rooms will appear later.

COLD STORAGE MAY BE OVERDONE

The cold storage of apples might easily be overdone. It would be quite practicable, for instance, to preserve any of the early fall apples if placed in storage at the proper time, for several weeks or even months, but it would not be good business to do so, because the trade would be shy of such varieties out of season. It would be unbusinesslike to attempt to carry inferior varieties into the season for better ones.

SEASON MAY BE EXTENDED

By degrees, however, the season for superior varieties might be considerably extended. The Rhode Island Greening is a good type of this class. The season for the Greening has been extended for six weeks or two months in the United States by means of cold storage, with the decided advantage that it misses the competition of cheaper varieties. The question of variety should be carefully considered in selecting a stock for cold storing.

THE FUNCTION OF COLD STORAGE

The proper function, then, of refrigeration in connection with our fruit, is twofold. First, the rapid chilling of early apples and tender fruits, and their preservation in transit; and second, the storage and early checking of the ripening process in late apples intended for long keeping. When the cold weather comes on, natural temperatures can be utilized but the damage is done before that time arrives, especially in those seasons when warm weather prevails late into October or November.

In these two fields, there is a great opportunity. Of course, there is always the further advantage of being able to carry surplus stocks over a period of glut in the market. There is particular need for cold storage in those warmer localities where late apples approach more nearly the stage of full ripeness on the trees. There is this to be said also, that apples which are well matured and highly colored keep better in cold storage than greener and more immature ones do.

But it would be a mistake to suppose that all Canadian apples require cold storage.

In the cooler districts at least a portion of the late or slow maturing varieties may be preserved for early marketing if properly handled in ordinary frost-proof warehouses. While cold storage would lengthen the season of all apples, the gain in value would not be equal to the expense in all cases.

As one whose duty it is, as a public officer, to give all reasonable encouragement to the use of cold storage, I feel that it would be unfortunate if these things were not well understood and clearly recognized before there is any large expenditure made in this connection.

PACKAGES IN COLD STORAGE

The question of package is of some importance in the cold storage of apples. In the case of the early varieties, for which quick cooling is important, the box package on account of its smaller size and, therefore greater extent of surface as compared with bulk, and the openings at the edges, undoubtedly facilitates the attainment of the object in view. With later varieties for which quick cooling is not so important, the barrel carries no serious objection.

WRAPPERS AND COLD STORAGE

All apples will keep better if wrapped in paper. The wrapper helps to prevent the bruises which may result from the handling and the pressure of tight packing, and it also prevents the spread of mould spores or other germs of decay from one apple to another. The wrapper offers the further advantage that it prevents, to some extent, the collection of moisture on the surface of the apple when it is changed from a low temperature to a comparatively high one.

The wrapper is obviously more useful on early and tender varieties than on later and firmer ones. Circumstances and labor resources must guide the individual in determining how far it will pay to carry the matter of wrapping.

British Columbia Inspection

Editor, THE CANADIAN HORTICULTURIST: As the inspection stations are run at present, the Dominion agent has the first "whack" at any importation of nursery stock and it is fumigated by him. It is then passed over to the provincial inspectors who apparently ignore any previous fumigations and, if any sign of pests or disease, is either fumigated again, dipped in solutions or destroyed. What is left is handed over to the consignee and if it survives he has something to show for his money; if not, he has the experience.

Why in the name of common sense cannot these two stations be consolidated into one general station, and if the stock is reported clean on inspection, why should it be fumigated at all to its detriment? All United States and eastern Canadian stock, I understand, has to be fumigated before leaving the home nursery.

No one wants to get any disease or pest-infested stock into British Columbia, but nurserymen are not mind readers enough to tell what the demand is going to be a year or two in advance, and if he is doing any amount of business and wants to fill his orders complete, he either has to buy what he is short of and burn up or sell cheap his surplus, or go out of business. Under the present regulations he might as well go out of the nursery business and get into some respectable one.—M. J. Henry, Vancouver, B.C.

In find THE CANADIAN HORTICULTURIST not only interesting but the most useful and helpful paper that I can get anywhere.—C. J. Pearson, Ottawa.

Nova Scotia Fruit Growers Meet

THE 46th annual meeting of the Nova Scotia Fruit Growers' Association, held at Kentville, Dec. 1 and 2, was one of the most practical meetings in its existence. For the first time the subjects of thinning fruits and the use of lime-sulphur as a winter spray were discussed and the experiences of practical growers as to the necessity of these two practices in up-to-date orcharding were given.

THINNING FRUITS

R. J. Messenger, Bridgetown, gave a talk on the benefits of thinning in his own orchard in which he cited the case of one tree of Baldwins among others which had in previous bearing years given a heavy crop of apples, 80 per cent. No. 2's and under. This year after thinning the tree packed 75 per cent. No. 1, 20 per cent. No. 2 and 5 per cent. No. 3. Thinning saved time in picking, packing, and saved the vitality of the tree and also we get more dollars for the smaller number of barrels shipped of the thinned fruit. Quite a number gave willing testimony in favor of thinning, among them, R. S. Eaton, G. C. Miller, F. H. Johnson and Mrs. Sangster.

SULPHUR SPRAYS

Mr. L. D. Robinson of Berwick gave an interesting talk on winter sprays, dealing chiefly with the lime-sulphur solution. In the discussion on this paper it was the general opinion that about 18 lbs. sulphur and 20 of lime was about the right proportion of ingredients, that the water should be boiling, that the sulphur should be added first, then the lime, and that it need not be applied hot as long as it was slightly warm. Boil about 35 minutes to an hour. It should be used only as a winter spray at this strength.

Capt. C. O. Allen reported having received several barrels of Niagara Brand prepared lime-sulphur last spring and had distributed some. Those who had used it spoke of its beneficial effects in cleaning up the tree. The impression seemed to be that the commercial article was not as efficient as the home-boiled lime-sulphur.

PROPOSED CHANGES IN FRUIT MARKS ACT

The question of a definite size to be mentioned in the Fruit Marks Act for minimum No. 2 and No. 1 of the principal varieties of apples was taken up by Inspector Fitch. He thought the present definition using the word "medium" was too vague and allowed of too much variation, that different minimum sizes would have to be established for the different varieties according to typical size, e.g., Baldwins, Greenings, Gravensteins, etc., minimum No. 2, 2-1/4 in., No. 1, 2-1/2 inches; Nonpareil, Golden Russets, etc., 2-1/8 and 2-3/8; Spys, Blenheim's, Kings, etc., 2-3/8 and 2-5/8, and so on. Since grading in this way would throw out a great many small perfect apples he recommended a definition for No. 3 and the barrelling of many of these smooth apples from 2-1/4 to 2 inches and marking them No. 3. The latter then would be for a small price a good apple for the poorer classes. He deplored the sending away of such trash as was now often shipped under the brand of No. 3.

After some discussion in which the speakers were about equally divided as to the advisability of definite size, the matter was left in the hands of a committee to consider and report at next meeting.

MOISTURE IN ORCHARD SOILS

F. T. Shutt, Ottawa, chemist for the Dominion Experimental Farm, gave a very able address on "The Control of Moisture in Orchard Soils." Some of the points of the paper were that the growing of grass or

grain in any orchard was bad practice on account of the great amount of water given off and taken from the soil by these crops, that intertilled crops might be practised in young orchards, that tillage should begin in orchards as soon as possible in the spring, that orchard soil should be cultivated to form an earth mulch as soon as plowed and that ground should not be plowed and left without further cultivation.

PLANT DISEASES

Prof. H. W. Smith of Truro spoke at some length on plant diseases. He strongly urged the necessity of stringent legislation for the prevention of the importation of plant diseases. The professor gave the life history and habits of some of the more common fungi and urged the adoption of all means possible to prevent the spread of disease, such as burning all diseased plants and parts of plants, dead trees, etc., and the plowing under of leaves upon which might be found the spores of such fungi. The aphid which had caused us so much trouble this year he was glad to say had a natural enemy which would probably keep it in check.

MISCELLANEOUS

Prof. M. Cumming of Truro spoke hopefully of the work of the college of agriculture. From Prince Edward Island alone 125 men were coming to the short course and an increased number from Nova Scotia and New Brunswick. He hoped to see the maritime provinces fully united in the interests of agricultural education.

A. S. Barnstead attended one of the meetings and spoke of the work being done by the department of labor and immigration. They were trying to get before the people of Great Britain the desirability of coming out here and settling and they were endeavoring to get the better class of British workmen to come. Any who are in need of farm help should apply as early as possible to this department.

Robert Thompson of St. Catharines, Ont., gave a very interesting talk on "Co-operation," telling us how successfully it had worked out in his association. Mr. Thompson took part in many of the discussions and proved a great help to the meetings.

The officers for the ensuing year are: Pres. E. E. Archibald; vice-pres., R. J. Messenger; sec., S. C. Parker, Berwick.—R.J.M.

The Grimsby Fruit District

Linus Woolverton, Grimsby, Ont.

In my note about the Niagara peninsula which appeared in the November CANADIAN HORTICULTURIST, I should have explained that those high prices at which peach farms are being sold about Grimsby include buildings, and in some instances, the year's peach crop.

Location too has much to do with values here, and the fruit farms of 10 or 15 acres in extent which lie close under the protection of the mountain and face the H.G. & B. trolley so that fruit may be shipped from one's private platform, bring the highest prices.

It is only of recent years that the old settlers in the Niagara district have begun dividing up their farms and offering parts for sale. There are two reasons—one the high prices offered and the other the difficulty of cultivating to advantage too many acres in fruit, especially in these days of high wages.

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Quebec Pomological Society

AN interesting discussion together with a large exhibit of fine fruit rounded out the excellent program of the Quebec Pomological and Fruit Growing Society, making the two days session at Macdonald College (Dec. 8-9) one of the most instructive in the history of the association. Regret was expressed on every hand that President G. Reynaud of La Trappe was, through sickness, not able to be present. It is earnestly hoped that the paralytic stroke under which he is suffering will prove only temporary and that soon he will again be able to carry on his valuable work at La Trappe. His excellent presidential address read at the meeting produced a general feeling of his presence and we cannot but feel that soon he will be with us again in his usual vigor.

The association has been especially favored by the presence of the Hon. Sydney Fisher, minister of agriculture for the Dominion, Hon. J. L. Caron, minister of agriculture for the province and Hon. J. L. Decarie, ex-minister of agriculture, now provincial secretary, and Mr. G. A. Gigault, deputy minister for the province. Addresses were delivered by these gentlemen which proved instructive and inspiring. The Hon. S. Fisher mentioned the fact that the color and aroma of Quebec fruit could not be excelled. He had just come from the Nova Scotia Winter Fair, and particularly noticeable was the high color of the Quebec fruit as compared with that from the east. A fairly large display of fruit was staged there but not so good as that exhibited here. His remarks were timely and interesting.

Hon. Mr. Decarie gave as his motto "The farm through the school." His efforts have been directed towards a betterment of rural conditions. His wish is that such conven-

tions become more general and that the people of the province take advantage of this and similar institutions to advance their interest in order to become equipped to battle with the problems of life.

Hon. J. L. Caron, himself interested personally in fruit growing, expressed himself as willing to do whatever he possibly could to advance the interest of the association and the province in general.

OFFICERS ELECTED

The following officers were elected: Hon. patron, Hon. S. A. Fisher and Hon. J. A. Caron; hon. pres., R. W. Shepherd, Montreal; hon. vice-pres., Prof. G. Reynaud, La Trappe; pres., Prof. W. S. Blair, Macdonald College; vice-pres., A. D. Verreault, Village des Aulnaies; sec-treas., Peter Reid, Chateauguay Basin; and nine directors.

On accepting office Professor Blair thanked the members of the Convention for the honor conferred upon him. He hoped to be able to give more time to the useful work in the parts of the province away from the immediate neighborhood of the college than heretofore.

RESOLUTIONS

The secretary's report showed good standing financially and increase in membership. The following resolutions were adopted:

"That this society shall offer to pay the railway fare of one delegate from each local horticultural society to the annual winter meeting of the society for the year 1910, with a view of inducing a better representation of the fruit growers' interests of the province.

"That in the opinion of the association it is considered advisable to make an exhibit of fruit from this province at the Royal Horticultural Show, London, next fall, and

that the secretary be delegated to confer with the government regarding same."

A resolution of regret was passed unanimously at the loss to the convention and the society through illness of President Reynaud, with the hope that his illness is only temporary, and that soon he will be restored to full vigor again to continue his good work as horticulturist of Oka Agricultural Institute.

A resolution, expressing regret at the loss sustained by the society through the death of W. L. Davidson of Davidson's Hill, Que., one of the most active and esteemed members of the association, was spoken to in feeling terms by various members.

UNIFORM JUDGING OF FRUITS

The advisability of adopting a uniform system for judging fruits was brought up by W. T. Macoun. The opinion of the convention was that some definite action should be taken and with this in view a committee was appointed to confer with other similar Canadian associations in the matter.

ADDRESSES BY HON. SYDNEY FISHER

Hon. Sydney Fisher gave one of his characteristic able addresses dealing especially with the possibilities of the province in the development of high-class dessert fruit. The province is especially adapted to the growing of Famenuse and McIntosh, two of the best fruits in the world, and they can be grown to the highest state of perfection right here. It requires hard work and constant attention to detail in fertilizing, spraying, packing, marketing, etc., but nothing of value is accomplished without this effort on the part of the producer and the satisfaction in being able to develop fruit second to none will well repay for the energy expended.

INSECT PESTS

The association had the pleasure for the first time of welcoming Dr. C. G. Hewitt,

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entomologist of the Dominion Experimental Farms. He presented a valuable paper dealing especially with the codling moth and plum curculio. Dr. Hewitt made an excellent impression on the members of the association through his clear and comprehensive manner of treating his subject. J. M. Swaine, entomologist of Macdonald College, presented a very valuable illustrated talk on insect pests, and answered many questions in discussion.

MISCELLANEOUS ADDRESSES

One of the best papers at the convention was that by J. C. Chapais on "Forestry and the Orchardist." It was most timely and practical. The value of co-operation amongst fruit growers was also ably put forth by G. A. Gigault, deputy minister of agriculture. Mr. Gigault as provincial representative spent some time during the past summer studying conditions in the Heed River district of Oregon, and other western sections. He pointed out the great advantages derived there through co-operation in raising the standard of the fruit grown and in the manner of placing it on the market. Alex. McNeill, Chief of Fruit Division, Ottawa, although unable to be present through illness, sent a valuable paper on box packing. Professor Lochhead gave a fine address on "How Plants Feed and Grow."

Father Athanase of La Trappe presented a valuable address on the growing of asparagus in orchards. Mr. S. L. Kinney, South Hero, Vt., gave an inspiring address, relating the effect of the recent New England Fruit Show on markets and consumers. At that exhibition some 400 barrels and 1,000 boxes of fruits were on exhibition. He recommended that similar exhibits be made at different commercial centers in various parts of Canada. W. T. Maceun, Ottawa, presented a valuable paper on plums. Ex-

tracts from this paper will appear in a later issue.

J. A. Ruddick, Dominion dairy and cold storage commissioner, gave a fine illustrated address on fruit growing in different parts of America, showing views of orcharding in Nova Scotia, British Columbia, Oregon and California. Dr. Robertson added to the interest of the convention by his characteristic inspiring address.—W.S.B.

Vegetables at Toronto Show

At the Ontario Horticultural Exhibition in Toronto in November, there was an excellent display of vegetables. In the report of the show that appeared in these columns, only brief mention was made of the vegetables, owing to the lack of space. To supplement this we wrote to Mr. Geo. Syme, jr., of West Toronto, who was the judge, for his opinion of the exhibits. His reply is as follows:

"In the capacity of judge I had a good opportunity to compare the vegetables with other years, and I found that they compared very favorably. The cabbages were not as good as last year but were very fair. The cauliflowers were only medium, except some that were shown by Mr. Wm. Harris of Humber Bay, which were very good. The celery was about as good as usual. The salads were fine. Potatoes and onions were good. The Swede turnips were the best that I ever saw. Carrots, parsnips and leeks were very good for such a dry year. Squash, marrows and citrons were better than last year. Tomatoes, egg plants and peppers were poor. Kale, leeks and artichokes were fine. The general arrangement of the display was very good and the committee deserve great credit."

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Advances made against Bills of Lading

We sell only on Commission therefore have no bought stuff to make the fancy prices of.

SHIP TO US ONCE AND WE ARE CERTAIN TO MAKE A REGULAR SENDER OF YOU

NOTES FROM THE PROVINCES

Prince Edward Island

J. A. Moore

Snow and high winds blocked our roads the day before the Fruit Growers' meeting. On the two days of the convention, Dec. 2 and 3, rain and fog were continuous so that the attendance was very small, but notwithstanding all these drawbacks a very successful meeting was held.

The snowstorm and hurricane had also stopped communication with the mainland so that we had none of the horticultural experts from Ottawa; only Mr. Vroom, Dominion Fruit Inspector for Nova Scotia arrived by the time the convention was half over. However, we are always glad to meet Mr. Vroom and we consider him one of the most practical men we have ever met.

The exhibit of fruit, while not as large as we have seen (for reasons above mentioned), was by long odds the best in quality in the history of Prince Edward Island's winter fruit shows. Mr. Vroom said the fruit exhibited was the finest he had ever seen on Prince Edward Island, and a look at the apples should prove to the most skeptical that apple-growing should be a very profitable industry here.

Alexander and Wolf River, Wealthy and Dudley, Baxter and King, Spy and Baldwin, Ben Davis and Stark, Gravenstein and McIntosh Red, Ribston and Golden Russett, Bellflower and Wagener, were all shown grown to perfection. Perfect specimens of Baxter of high color and enormous

size were shown by A. E. Dewar and J. A. Moore who also were the only exhibitors of fruit in boxes and barrels.

Other exhibitors with splendid displays were A. M. McRae, Edward Wood and John Smith of Pownal; D. P. Irving, M.P.P., Vernon; A. Essory, Milton; J. A. Annear, Lower Montague; and McIntyre & Son, New Perth. It was emphasized that although we can show excellent plates of Spy, King, Mann and Baldwin, these varieties are not profitable for Prince Edward Island.

The Co-operative Fruit Company organized by the fruit growers is doing good work. They have bought material for boxes and barrels, got them made up and furnished to members at cost, thus effecting a great saving.

Mr. Vroom gave an address on co-operation, which at the start, he said, should be officered by men who not only knew their business but were willing to give a good deal of their time to put it into successful operation. There should be co-operation in buying, planting—large blocks of similar varieties—packing and selling. He did not think Prince Edward Island grew more apples at present than enough for home consumption and he did not see why merchants should import when they could get apples like those before him. There should be several centres for packing as local freight rates are too high to bring them all in to Charlottetown to pack.

The commissioner of agriculture, Hon.

PLANT HARDY RASPBERRIES

Quebec Grown Plants

I have a large stock of fine Herbert Raspberry plants; the most vigorous and productive of the Hardy Raspberries. And have also good stocks of the following hardy varieties:

KING, the best early, a great commercial berry.

EATON, a new variety of great promise, the largest of the reds and a tremendous cropper, the Alexander of raspberries.

LOUDON, a slow growing variety but iron clad.

One dozen of any of these, mail postpaid, well packed for one dollar.

I have also a large stock of strawberries of the newest and best varieties.

FOR PRICE LIST, DESCRIPTIONS
AND QUOTATIONS IN LOTS,
SEND ADDRESS

C. P. Newman

Box 51, Lachine Locks
QUEBEC

Niagara Brand Lime-Sulphur Spray

MADE IN CANADA

NIAGARA is the Standard of Value for Fruit Tree Sprays. It is used by the most successful Fruit Growers in every Fruit District of the Pacific North-west, and in many of the Eastern States, and has already proven its worth in Ontario.

THERE IS A REASON WHY

NIAGARA is made under special treatment (of which we have secured all rights for Canada)). The only known process by which is made a permanent and reliable solution of lime and sulphur of sufficient strength to meet all requirements.

Anybody can make a spray which may do sometimes. The process by which NIAGARA is made insures the best work at all times.

NIAGARA is the best known remedy for Apple Scab, Leaf Curl, and most all forms of fungi, San Jose Scale, Oyster Shell Bark Louse, Blister Mite, Aphis, Bud Moth, and all Sucking Insects and Parasitic Life.

Potato and Tomato Blight and Mildew of Grape have been successfully treated.

NIAGARA Brand Lime-Sulphur Solution has been proven by the highest authorities, after several years' work, equal to Bordeaux as a fungicide, and far less dangerous to use. It is also cheaper and always ready to use.

ARSENATE OF LEAD

ARSENATE OF LEAD has almost entirely supplanted Paris Green as a poison for Codling Moth, and other insects requiring a poison treatment. Such dissatisfaction as may have arisen because of burning or failure can be attributed to an improperly combined arsenate. NIAGARA BRAND ARSENATE OF LEAD is specially prepared with a view to efficiency and safety.

PRICES.—Because of manufacturing ourselves, and buying materials in large quantities, we are prepared to offer these Sprays at a much lower price than obtained last season.

PUMPS.—We are Canadian Agents for the famous BEAN SPRAY PUMPS—hand and power. Also a full line of Hose, Nozzles, etc.

SPRAY BOOK.—We are preparing a book, which we trust will be of value to the Fruit Growers, which will be mailed to you upon request.

NIAGARA BRAND SPRAY COMPANY, LIMITED
BURLINGTON, ONTARIO

NIAGARA SPRAYS are also made by:

NIAGARA SPRAYER CO., Middleport, N.Y.

BEAN SPRAY PUMP CO., Cleveland, Ohio

OREGON SPRAY CO., Portland, Oregon

MEDFORD SPRAY CO., Medford, Oregon

HOOD RIVER SPRAY MFG. CO., Hood River, Oregon

REMEMBER—Wherever Fruit Excels NIAGARA SPRAY is used.

John Richards, led the discussion which followed and showed himself in full sympathy with the work. He said he had visited British Columbia last fall and had eaten apples in the Okanagan Valley but did not think the flavor nearly as good as our own home-grown fruit.

Several growers spoke of beneficial re-

sults from the use of the lime-sulphur solution sprayed on to the trees cleaning them of bark lice and making the foliage glossy and the whole tree healthy and thrifty. The formula used was about 25 lbs. of lime and 15 to 18 lbs. of sulphur to 40 gallons of water.

So with very little of expert theory but a great deal of interchange of ideas on practical work, the meeting of Prince Edward Island Fruit Growers' Association came to an end. Prof. Theodore Ross, the energetic secretary was also of great benefit to the convention.

New Brunswick

For the production of roots and all vegetables of the highest quality for culinary and market purposes, New Brunswick stands unexcelled on the American continent. The reputation which our potatoes, as

well as our turnips and garden vegetables enjoy everywhere they have been sold, shows that with proper business methods, we can secure the highest prices on every market where it is possible to place them.

Recent experiments in Ontario show that the maritime province potatoes used as seed give a much larger yield than Ontario grown seed, and when this fact becomes generally known, there should be a permanent demand for New Brunswick potatoes in that province and perhaps elsewhere for seed purposes. The same high reputation the potatoes of Aroostook county, Maine, have throughout the United States, may be obtained for New Brunswick potatoes throughout Canada. In spite of the high tariff against them, our potatoes almost every year find a sale in the Boston market where they are distributed more or less for seed purposes. New Brunswick turnips from Charlotte county and the St. John Valley have gone forward in considerable quantities to Boston where they grade highest in quality.—From Report of New Brunswick Agricultural Commission.

Annapolis Valley East, N.S.

Eunice Watts, A.R.H.S.

Meetings were held last month in connection with the proposed railway which is to run through the richest section of the apple belt in northern King's county. This fruit land under the shadow of the North Mountain consists of heavy loam and clay; and though very productive, the farmers are at a disadvantage when it comes to hauling their produce over muddy roads which are almost impassable in wet weather.

The executive of the Nova Scotia Fruit Growers' Association met at Kentville on Dec. 8, when they inspected a number of

MR. BERRY GROWER

We can save you money on your Strawberry Plants. First-class, vigorous, well-rooted stock. Fresh dug, true to name, well-tested varieties, grown from selected mother plants including Williams, Dunlop, Excelsior, Parsons' Beauty and Good Luck.

Prices \$2.50 to \$4.00 per 1000

Our 1910 price list tells all about them. Send for it to-day

ONTARIO NURSERIES, WELLINGTON, ONT.



This shows the H.P. Spramotor arranged for spraying potatoes, three nozzles to a row and four rows, two spraying from the sides and one from the top, adjustable as to height and width up to 40-in. rows. Nozzles absolutely will not clog. 12-gallon air-tank, automatic and hand controlled; 100 lbs. pressure guaranteed with 12 nozzles open. An acre can be sprayed in 20 minutes. Has agitator clean-out pressure relief into tank, and nozzle protector all under control of the driver from seat. For 1 or 2 horses. Fitted for orchard, vineyards and grain. This ad. will not appear again in this paper.

Heard Spramotor Co.

1397 King St., London

BELL GLASSES

FOR GREENHOUSES AND GARDENS



Expert growers in Great Britain use thousands of Bell Glasses. They are of great assistance in growing seedlings or protecting plants from late frosts. The use of Bell Glasses makes a difference of from two to four weeks in the growth of plants.

Send for descriptive circulars and prices to—

PILKINGTON BROS.

Limited

Toronto, Montreal, Winnipeg, Vancouver

Mention The Canadian Horticulturist when writing

Feed Your Land

WITH GOOD MANURE AND GET

GOOD RETURNS

MARCHMENT'S

SURE GROWTH COMPOST

—IS THE BEST—

Supplied to the Largest Nurserymen
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S. W. MARCHMENT

133 VICTORIA ST., TORONTO

Telephones : Main 2841

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Mention The Canadian Horticulturist when writing

farms in order to select an experimental station for horticulture. After a long discussion it was finally decided that the Sharpe farm would be the most desirable for the government to purchase. This property consists of 357 acres in the vicinity of the Dominion Atlantic Railway, being near the county town, and near to notable orchard lands.

Recent reports from England quote Nova Scotian apples as follows: No. 1 Baldwins, 13s. 9d. to 14s.; No. 2, 12s.; Greenings, No. 1, 14s. to 15s. 3d.; No. 2, 12s. 6d. to 14s. 6d.; Kings, 15s.; Stark, 14s to 14s 3d.; Davis, No. 2, 10s to 10s. 9. In the same report Canadian apples are making a much higher price in the British market.

In the western part of King's county new cranberry bogs are being made very rapidly. Much land which was good for neither pasture nor cultivation is now being turned to profitable use, and the owners who would have almost given this bog land away in former years, now think that they are going to reap a fortune.

Annapolis Valley West, N. S.

R. J. Messenger

The apple situation has been far from satisfactory this month (December). Apples have been going forward in great numbers and meeting lad markets. The demoralization of the markets early in the season still continues and probably will recover very slowly. There are a great many more apples to go forward than usual and these are ripening very early so it is just a toss up whether to rush them forward and run the risk of a poor market or keep them longer and run the risk of them getting too ripe and losing from that reason. The very warm weather all through the fall still continues at this writing (Dec. 9). Apples on the

trees are good to eat, scarcely injured by frost. Apples in warehouses are suffering also.

The crop has been clean this year and of good quality. Buyers were busy early in the season and are now either trying to back out or are more or less quietly repenting.

The question of the experimental fruit station has been settled as far as choice of location goes. The matter was left in the hands of the executive of the fruit growers' association to decide on a site. This was done at a meeting of the executive committee held in Kentville on Dec. 8. This committee unanimously decided upon a farm just outside of the limits of Kentville. It now rests with the local government to buy the property and establish the station.

Returns from apples are from \$1.20 to \$2.00 for Greenings, Baldwins, etc. Baldwins as last year are a popular variety and will probably compare favorably with any of the varieties in price. It is hoped that winter varieties will do better later.

On his visit on Dec. 6 to the Cattle Show

at the Agricultural Hall, Islington, England, the King visited the British Columbia government's fruit display. His Majesty expressed great admiration of the exhibit and asked numerous questions concerning it.

The FARMERS' GARDEN
A Seed Drill and Wheel Hoe is indispensable—not only in a village garden but on largest farms.
Farmers should grow all manner of vegetables and "live on the fat of the land." Should provide succulent roots for Cattle, Swine, Poultry, and save high priced feed stuff. Great labor-saving tools of special value for the home as well as the market garden. Send for free book.

SAVE HIRED HELP
Only One of Many Iron Age Tools
The most complete tool made

IRON AGE



BATEMAN MFG. CO., Box 516 G GRENLOCH, N. J.

Planet Jr.

The greatest time-savers and labor-savers ever invented for the farm and garden. They frequently do six men's work, and do it better than by ordinary methods. Over two million farmers and gardeners have found this out by actual use. You can't afford to be without a Planet Jr.

No. 17 Planet Jr Single-Wheel Hoe is a most handy and effective tool for garden cultivation. A fine tool for working close to crops.

New No. 81 Planet Jr Horse-Hoe, Cultivator and Furrower is a great implement for cultivating and hilling crops up to 4 feet apart. Compact, strong, and steady-running. Get the Planet Jr 56-page catalogue for 1910. It is free. Write today.

S. L. Allen & Co Box 1106 Philadelphia Pa



Are you troubled with WIREWORMS?

IF SO

APTERITE

WILL RID YOUR SOIL EFFECTUALLY.

Read the following:

Longton Bridge, Preston
March 22nd, 1909

Dear Sirs:—

I have much pleasure in stating that I find your Apterite most effective for destroying Wireworms. I had 1,000 tomato plants in one house, and I used a little Apterite to the base of each plant when planting, and I must state that it killed the Wireworms; I believe it also fed the plants, as I had a beautiful crop of tomatoes, each plant carrying, on an average 9 1-2 lbs. of fruit. The Apterite seemed to make the plants much shorter jointed than in the other houses full of tomatoes, and they were not dressed with your Apterite. On some soils, I believe Apterite to be of use as a manure, as well as a pest destroyer. It is economical, effectual, and safe.

Yours faithfully,

(Signed) Henry J. Griffin.

Full particulars from

WM. COOPER & NEPHEWS

TORONTO, ONTARIO

PROTECT YOUR TREES

Against Rabbits, Mice
and other Vermin



Tree protected by Wooden Veneer and banked up with earth to prevent entrance of pests at bottom.

Many young orchards are greatly injured each year by these pests. Wrap the trunks with

WOODEN VENEERS

and damage will be prevented. These veneers will protect also against sun-scald.

Send at once to

THE OAKVILLE BASKET CO.

OAKVILLE, ONT.

Kootenay Valley, B. C.**Edgar W. Dynes**

A syndicate composed of a number of fruit growers in the vicinity of Nelson have issued a statement with regard to their

operations for the past year. Their expenses of organization were only five per cent. and the returns received from shipments of strawberries and other small fruits were very satisfactory. The net average returns on strawberries were \$2.15 a crate of 21 boxes and the raspberries realized \$2.65. Cherries brought from ten to twelve cents a pound according to the way the fruit was packed.

Creston fruit growers propose to erect a large warehouse near the railway station for the purpose of storing fruit. It is expected that this district will ship at least a dozen car loads of fruit next year.

At a meeting of the Creston fruit growers an interesting discussion took place with regard to the formation of a provincial fruit growers' information bureau. The idea seems to be to have a central bureau with which fruit districts shall be in constant communication during the shipping season. It is also suggested that this bureau keep in touch with the great fruit market centres on the prairie in order that too much fruit may not be sent to one point and too little to another. It has been suggested that the

government undertake the expense of operating such a bureau.

Some reference was also made to poor packing methods. While in some instances there were individual growers whose packing methods were all that could be desired the great majority still used a very antiquated and slovenly style of packing. It was agreed that a great deal of further education was necessary along these lines.

Mr. R. M. Winslow, head of the provincial horticultural department, made a trip through Kootenay in November on a trip of inspection. Mr. Winslow has been recently appointed to the position he occupies and this was his first official trip through this part of the province. He was particularly struck with the progress and apparent prosperity of the Doukhobor colony at Waterloo. A \$25,000 irrigation system has just been installed on their colony. It will be so situated as to irrigate all their tract of 2,900 acres. The fruit trees which they planted last spring are making a very satisfactory growth.

Renew your subscription now.

Imperial Bank

OF CANADA

HEAD OFFICE—TORONTO

Capital Authorized, \$10,000,000.00

Capital Paid-up, . . . 5,000,000.00

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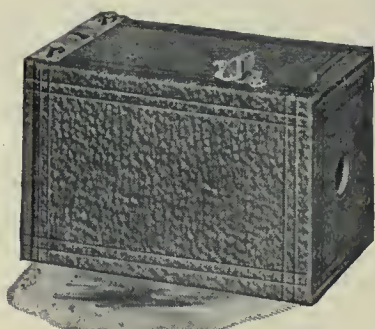
HON. R. JAFFRAY, Vice-President

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Anybody Can Kodak



The No. 1 BROWNIE

Pictures, 2½ × 2½. Price, \$1.00

If you feel somewhat interested in photography, but are not just sure whether you will really care for it after you have taken it up, there's a very inexpensive way of making the experiment. The Dollar Brownie offers the opportunity. The Brownies are not expensive, but they stand the supreme test—they work. The pictures are 2½ × 2½ inches and the camera is truly a capable little instrument for either snap shots or time exposures. The price is so small that at first thought you may consider this camera a toy. The fact is that its production at this price is only made possible because it is made in the Kodak factory, the largest and best appointed camera factory in the world.

The Brownie Cameras all load in daylight with Kodak film cartridges, have effective lenses and shutters and are capable of really high-grade work. They are made in both the box and folding form at prices ranging from \$1.00 to \$12.00.

The Book of the Brownies, tells all about them, and may be had free, at any dealers or will be mailed upon request.

**CANADIAN KODAK CO.
LIMITED
TORONTO, CAN.**

Planet Jr.

reduces your labor; increases your crops

A Planet Jr farm or garden Cultivator often does three to six times the work of one man with ordinary implements; and cultivates the ground so thoroughly that you get more and better crops. You are actually losing money without a Planet Jr. Strong and substantially built. Fully guaranteed. Lasts a lifetime.

New No. 14 Planet Jr. Double-Wheel Disc-Hoe, Cultivator and Plow has three adjustable discs on each side, a pair of new-idea prooged cultivator teeth that run shallow next the row, steels for plowing, furrowing, and covering, and a pair of leaf-lifters.

No. 8 Planet Jr. Horse-Hoe and Cultivator will do more things in more ways than any other horse-hoe made. Plows to or from the row. A splendid furrower, coverer, hiller and horse-hoe, and unequalled as a horse-cultivator. Write today for the 56-page 1910 Planet Jr. catalogue of 33 different tools. Free and postpaid.

**S. L. Allen & Co.
Box 1106 G
Philadelphia
Pa.**

Write for the Name of our Nearest Agency

EWING'S THE SEEDS THAT GROW

Did you ever prepare a garden most carefully, sow the Seeds most tenderly, and then wait—and wait in vain—for most of them to come up? Then you'll realize the expensiveness of poor seeds—seeds that are too old or too weak to germinate.

You can't tell by looking at the seeds in the store whether they will grow or not. You can't be bothered testing them.

But you can be sure of getting healthy, vigorous seeds that you can depend on by buying

EWING'S

For forty years they have been giving big, healthy results. Write for our big illustrated catalogue. It is Useful, Interesting and Free.

**WM. EWING & CO., Seedsmen
MCGILL ST., MONTREAL
SEEDS**

Awards at Royal Show

At the Royal Horticultural Show, London, England, the first week in December, the following prizes were won by British Columbia fruit:

British Columbia for apples, a gold medal; Kaslo district, silver and gilt banksian medal; Salt Spring Island, silver and gilt knightian medal; C. T. Cooney, silver knightian medal; Stirling & Pitcairn, silver and gilt banksian medal; Mrs. J. Smith, silver and gilt banksian medal; Okanagan district, silver and gilt knightian medal; Victoria district, silver and gilt knightian medal.

New Brunswick won a silver and gilt medal; C. N. Peters, Queenstown, N.B., silver medal; F. A. Hibbard, Burton, N.B., silver medal; J. P. Beyea, Lower Gagetown, silver medal.

English Gooseberries

Editor, THE CANADIAN HORTICULTURIST: The article on growing English gooseberries in the November issue deeply interested me. We have never had any trouble with the industry and we have tried quite a planting of Whitesmith and Crown Bob.

These varieties we were warned not to buy because English gooseberries could not

be grown in this country. We had no difficulty whatever in keeping the fur off of them by early spraying with potassium sulphide, and we harvested an extremely big crop of handsome, large berries.—H. B. Fullerton, Director, Agricultural Development, Long Island Railroad Company, Huntingdon, N.Y.

I am well pleased with THE CANADIAN HORTICULTURIST.—I. G. Walker, Nanaimo Co., B.C.

A 14 kt. Gold Fountain Pen free for only two new subscriptions to The Canadian Horticulturist.

At your service Sir—Anywhere

YOU must analyze the parts of our No. 1317 Telephone Set to fully appreciate its superiority. For example, a farm 'phone demands an extra loud gong—you're liable to be quite a piece away when it rings and it's of little use unless you always hear it. The gong we use is made of brass—a big one—and produces fully 50 per cent. more noise than any other gong for farm use. The gong posts are mounted directly on the ringer frame so that even the warping of the instrument cannot change the adjustment.

THAT'S what a telephone says to every man on whose wall it hangs. It's a good servant—is a telephone—a mighty good servant and always ready and waiting for you the moment you want it. And not only is it there for business, but it stands for pleasure as well. Think what a convenience,—what a deal of comfort,—it would be for you in the long, lonesome winter evenings, when the snow is piled mountain-high in every path and road. Or suppose you needed a doctor on one of those evenings—just suppose. Well, if you have a telephone—but you know the story. There's only one way for a story like that to end if your telephone's a good instrument—if it doesn't get out of order—if it doesn't fail you at the critical moment—in short, if it's a "Northern Electric." You save a trip to town—a long wait—a never-ending journey back—and—perhaps—a life.

NO. 1317 is equipped with our new No. 48-A generator—a generator whose efficiency is greater, and which will ring a greater number of telephones on a longer line than any generator on the market. Thousands of these generators are operating on lines more than 30 miles long with as many as 40 telephones on the same line. Indeed, in one case, on a line approximately 75 miles long, there are 75 sets. While this is really too great a load, it is of interest as indicating the wonderful strength of this generator. Consider this.

Our Newly Designed No. 1317 Type Telephone Set

is also equipped with our new type No. 38 ringer, a very sensitive and efficient ringer operating with only one-third to one-fourth the current required for other ringers in use on farm 'phones. The cabinet, or wooden part of this telephone is the very finest quality and finish of quarter-sawed oak—in point of mere appearance this instrument is an ornament to any wall. Of course this means nothing, unless the service it gives is of the very best; but, consistent with satisfactory service, good appearance is always desirable.

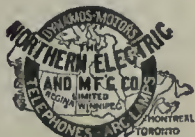
And Some Of Its Principal Exclusive Features

such as the fact that the armature is normally short circuited so as to give it complete protection against damage by lightning. The act of turning the crank, automatically connects the generator to the line—and this circuit is again broken as soon as the crank is released. All magnets are made of a special steel so as to insure their retaining their strength indefinitely. Remember this is a five bar generator and fully fifteen per cent. more efficient than any other generator on the market. Specially adapted for use on long heavily loaded rural lines.

Write for our Free Book

The whole story of rural telephone is yours for the asking. Simply tell us that you want it.

Ask us to send you Bulletin No. 0000, and let it tell you not only all about our telephones for farm use, but also of the steps it is necessary to take in the formation of a rural 'phone company. This book tells how simple it is—how very little money is required and places



you in a position where you can go right ahead yourself in your own community and organize among your own neighbours. Write to us to-day for the free book—remember, the story is yours for the asking. 204

NORTHERN ELECTRIC AND MANUFACTURING CO. LIMITED

Manufacturers and suppliers of all apparatus and equipment used in the construction, operation and maintenance of Telephone and Power Plants. Address your nearest office.
MONTREAL TORONTO REGINA VANCOUVER WINNIPEG
Cor. Notre Dame and Guy Sts. 60 Front St. W. 918 Pender St. W. 599 Henry Ave.

Shipping Peaches to England

In recent years a few attempts have been made by Ontario fruit growers to place peaches upon the British markets in good condition and to sell them there with a profit, but not until the past season did the government enter into the proposition. The fruit branch of the Ontario Department of Agriculture sent 25 cases to London. Each peach was wrapped in paper and surrounded with cotton batting. The peaches were in fair condition on arrival, despite the fact that they were not shipped in cold storage, from the starting point, St. Catharines, to Quebec, that there was no cold storage from Liverpool to London, and that the fruit was delayed a few days at Liverpool before being shipped to London. Reports from various Old Country sources on the condition of the fruit and on the feasibility of working up a market there for peaches, have been received. Extracts from some of them are as follows:

Harrod's, London: "Packing will have to be different before Ontario peaches can be sold in London. Did not think much of them."

Army & Navy, Victoria St., London:

FOR SALE AND WANTED

Advertisements under this heading inserted at rate of two cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

WANTED—A capable man, married preferred, to take charge of a Nursery and Fruit Farm in the Province of Quebec. Must understand the propagation and cultivation of Nursery Stock and be qualified to manage successfully large and small fruit orchards. An excellent opportunity for the right man. Apply stating age, experience, salary expected, etc., to O. S. Clark, Box 278, Montreal.

"Very good when opened; flavor fine. Could dispose of them easily if they came in better shape. They must be packed more carefully. Want to know the cost of peaches laid down here."

Whiteley's, London: "Packing is not good. Could sell them if packed like the French or African peaches. If this peach could be put on the English market at 2½d. could sell lots of them."

Fortune & Mason, Piccadilly, London: "On exhibition three days. Sold some at six pence each. Flavor was fine. Packing is bad. Recommend them being shipped in small boxes, single tier."

Canadian Pacific Railway, London: "Had several enquiries as to whether they were wax or real. Color very much admired."

Grand Trunk Railway, London: "All went bad between Saturday night and Monday morning. Several people admired them in the window on Saturday."

Journal of Horticulture, London: "Fruit is large, exquisite in flavor and rich in color and bloom. Arrived in splendid condition."

Gardeners' Chronicle, London: "Peaches arrived in very satisfactory condition. Unless they can be placed on the market at a cheaper rate than 6d., each they will scarcely succeed in competing with outdoor peaches grown in this country."

Fruit Grower and Fruiterer, London: "Ontario fruits have established an excellent reputation but that peaches in such quality as those which are now on show, and of which the markets are promised an ample supply in due course, would ever be possible has not, we think, been altogether appreciated."

London Daily Mail: "Fruit is large, richly colored and of an exquisite flavor."

London Times: "The fruit, although not specially packed arrived in good condition."

"While some of the reports are not very very flattering," writes Mr. P. W. Hodgetts chief of the fruit branch, Toronto, "still they give sufficient encouragement for us to believe that certain of our varieties of peaches can be landed in Great Britain, and sell at a nice profit to the growers here. If South Africa can land this fruit in Great Britain in good condition I see no reason why our Ontario peaches should not, with a handicap of only half the time, arrive in just as good shape."

"I have received some correspondence from the agent of the Dominion Express Company in which is shown that to get a refrigerator service from Liverpool to London, payment would have to be made on 30 cwt., which is the minimum for refrigerator cars there. In addition the cost of icing, which amounts to about 15 shillings, has to be borne by the shipper. At the same time the agent there points out that it is hardly necessary to send peaches forward in refrigerator cars in Great Britain, at the time of year, when such goods would go forward."

Shipments of peaches were sent to England also by the Biggs Fruit and Produce Co., Burlington, Ont., and by Mr. Hamilton Fleming, Grimsby, Ont. Mr. Fleming's peaches did not arrive in good condition. Further reference to these experimental shipments of peaches will be made in next issue, together with some notes on packing and packages, made by Mr. W. A. MacKinnon, Canadian Trade Commissioner, Birmingham, in one of his reports to the Department of Trade and Commerce at Ottawa.

Copies of the index to THE CANADIAN HORTICULTURIST for 1909 are now available. They will be sent to all persons that ask for them.

STEELE-BRIGGS'

SEEDS

Are known everywhere for their purity and reliability. Send for our fine illustrated Catalogue for 1910. It tells all about the good things for the garden and farm.



Many new and reliable introductions.

Palms
Roses
Shrubs
AND
Plants

Steele Briggs Seed Co.

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Pilfering by Express Employees

Editor, THE CANADIAN HORTICULTURIST: I note a small item in your editorial column relative to the "pilfering of fruit by employees of express companies," with certain remarks thereto. Permit me to point out that that will go on indefinitely unless taken up by some of those "who have gotten together" and a case or two made thereof.

The 'morals' of Canadian express companies are of themselves low for nothing is done to detect and punish the culprits. It is cheaper and easier to just tell the complainant that "their agent reports goods delivered in good order." They know very well that the matter will end there no matter how clear a case is against them for the reason of expense to the individual to carry it further.

The matter is a serious one morally on the one side since the employees know they can rob such packages with impunity and laugh at the public. On the other hand, it is detrimental to the business of the fruit growers and should not be allowed to sink into oblivion with the well merited remarks made by you.

I would also point out that the companies need not go to the expense of "spotters" provided their methods of business are systematised; for it is then easy to determine on which division the pilfering has taken place.—A. Bonar Balfour, Port Dalhousie, Ont.

The Apple Situation

P. J. Carey, Dominion Fruit Inspector, Toronto

Contrary to expectations of too many of the operators, the apple crop has turned out to be almost a large one, taking it all over the Dominion. The talk of a "short crop," caused the usual recklessness on the part of the dealers. A careful estimate taken, say December 15, would seem to show in store in Ontario some 300,000 barrels, with about 275,000 in Nova Scotia. The very disappointing returns from the Old Country for the last month cannot be said to be due to the fact that the shipments were large, as much as to the wretched condition in which some of the cargoes arrived.

The weather conditions again this season contributed not little share in bringing

about the unsatisfactory results. Large quantities of the best of the fruit were allowed to remain on the trees until, in many cases, the early part of November in order that it may get size and color. The color did not seem to come but the frost did.

It is the practice of many who store apples, and one perhaps hard to avoid, to rush to the market (as soon as storing is done) all odds and ends, soft varieties, frosted, and otherwise damaged fruit. No matter where one would go in apple districts, gangs could be seen hustling out this class of stuff, perhaps to a greater extent this season than for some time before, and many a barrel was in a wasty condition before leaving the packing house. It is no wonder then that prices at the other end did not show a profit: just at a time too when the trade wants fancy fruit for the holidays, and also the right time to lay the foundation for the good stuff to follow.

With prudent handling from now on there seems to be no reason why the quantity to go forward should not bring at least fairly paying prices.

Picton Horticultural Society

At its annual meeting held in November, the Picton Horticultural Society elected the following officers: Pres., P. C. Macnee; vice-pres., R. Davison; sec-treas., W. D. Ross; and six directors.

It was decided that the society as a whole should take THE CANADIAN HORTICULTURIST. In discussing the merits of this publication Mr. Ross said that the best results could not be obtained from the bulbs that they received as premiums from the society, if they did not know the proper way to grow them. THE CANADIAN HORTICULTURIST is very helpful in this respect and it often contains the experiments of other horticulturists. He said that it is important that every member of a horticultural society should take THE CANADIAN HORTICULTURIST.

Allow me to congratulate you on the constant improvement in THE CANADIAN HORTICULTURIST.—C. N. Vroom, St. Stephen, N.B.



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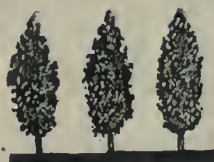
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108 A

How Pure Seeds are Secured

The great care that is being taken by some of our leading seedsmen to ensure the sending out to their customers of nothing but pure seed was illustrated recently to a representative of THE CANADIAN HORTICULTURIST who called at the store of J. A. Simmers, King street, Toronto.

A number of employees were noticed at work sorting seed by hand. The seed in question was being hand picked, and all poor seeds discarded. Mention being made of the work involved in such a process led Mr. Hermann Simmers to show our representative through the establishment. In the upper part of the building germination tests are conducted in the open air as well as under glass. Samples of seeds are carefully counted and planted in soil under label, and a record is kept of the percentage that germinate. In addition to the above method, the most up-to-date seed germinators are used for indoor testing, including such as those used by the seed division of the Dominion Department of Agriculture.

In order that all the seeds may be thoroughly clean, they are all put through fanning mills, varying from small hand mills to power mills, according to the seed to be cleaned.

Large seeds, such as peas, beans, etc., are hand picked whenever necessary. The expense involved in the work is very heavy. "We believe," said Mr. Simmers, "that the public now recognizes how essential it is that nothing but the best possible quality of seed shall be sown and that the seedsmen who recognize this fact and who endeavor to furnish such seed will be repaid. For that reason we are putting forth every possible effort to ensure the seed we send out being absolutely pure."

Taxidermy is now taught successfully by mail by the N. W. School of Taxidermy, 5151 Elwood Bldg., Omaha, Neb. This school guarantees success to its students, or no tuition is charged. Write to the school to-day and get, free, the beautiful illustrated book entitled "How to Learn to Mount Birds and Animals." Mention THE CANADIAN HORTICULTURIST.

That the book "Great Crops of Strawberries and How to Grow them," issued by R. M. Kellogg Company, improves with each annual issue, is evidenced by the edition for 1910 that has just been received. This work is of great value to strawberry growers. Every reader of THE CANADIAN HORTICULTURIST should take advantage of the offer of a free copy of this book. Address R. M. Kellogg Company, Box 570, Three Rivers, Michigan.

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WINDSOR
TABLE
SALT. 16

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Presentation to Mr. Goldie

A pleasing event occurred in Guelph on December 10, when Mr. James Goldie was presented with a beautifully bound illuminated address by a number of his horticultural friends. The address was made up in book form and was a very artistic production. The presentation was made at Mr. Goldie's beautiful home. It was merely a little token of recognition from some of the most prominent horticulturists of the province who took this pleasing manner of expressing their appreciation of what Mr. Goldie has done and is doing for horticulture in Ontario.

With a few gracious words, Mr. Goldie expressed his thanks. Among other things, he expressed the desire to see a botanical garden established in some central place, preferably Guelph, where flowers could be shown in an ideal state of culture. He would particularly like to see native flowers, ferns and shrubs in the collection.

The presentation was made up by subscriptions from Mr. Goldie's old friends in Hamilton, Oakville, Toronto and Guelph. Among those present were Messrs. H. R. Frankland, Roderick Cameron, John Chambers, King and Stevenson, Toronto; Messrs. Wm. Ross, T. M. Hill, Wm. Hunt, Prof. Hutt and Miss Rose, Guelph; and Mr. J. W. Butchart, Jordan Harbor. The Hamilton and Oakville friends were unable to attend but sent their regards.

Mr. Goldie is 88 years old and has been a student of nature and gardening throughout his life time. His great love for flowers and plants and his unbounded enthusiasm in the study and practice of horticulture have made him a master in the art. It is fitting that this presentation was made in order to show, in a small measure at least, that his worth as a man and his work as a horticulturist have been and are appreciated.

Spokane Apple Show

The largest exhibition of its kind that has ever been held in the world was the second National Apple Show held at Spokane, Wash., in November. There were more than 1,500,000 apples on display, comprising 2,160 entries from 23 states of the union and two provinces of Canada. British Columbia made a good showing but did not do as well as last year.

The sweepstakes prize of \$1,000, together with the title of quality apple king of America, was won by Tronson & Guthrie, Eagle Point, Ore., with a car-load of Spitz-enburgs; also won \$250, first in class, Spitz-enburg exhibit of 630 boxes. The second sweepstakes, \$500, went to W. W. Sawyer of Sunnyside for a car of Grimes' Golden; also won \$250 for first in class of unnamed standard commercial varieties. Space will not allow further mention of the prize winners with the exception of the successful Canadian exhibitors who were as follows:

McIntosh Red, 10 boxes, H. W. Collins, Carson, B.C., third. Northern Spy, 5 boxes, R. Sweeney, Kelowna, B.C., first, \$50; Coldstream Ranch, Vernon, B.C., second, \$15. King of Tompkins, 5 boxes, James Spiers, Kaslo, B.C., third. Foreign country groups, one barrel or three boxes, any variety, H. C. Mallam, Kelowna, B.C., first, \$100; Salmon Arm Farmers' Exchange, Salmon Arm, B.C., second, \$50.

McIntosh Red, single box, J. J. Campbell, Willow Point, B.C., first, \$10, and fruit trees. Four-tier Winter Banana, single box, A. D. Lowe, Vernon, B.C., first, \$10 and trees. Wagener, single box, H. W. Collins, Carson, B.C., second, \$5, and diploma. Golden Russets, single box, R. E. Harris, Kelowna, B.C., first, \$10, and trees; Wm. Cockle, Kaslo, B.C., second, \$5 and di-

ploma. Northern Spy, single box, C. Goldman Ranch, Vernon, B.C., second, \$5, and diploma. Pyramid of 50 big apples, H. W. Collins, Carson, B.C., third.

Toronto Vegetable Growers

At the annual meeting of the Toronto branch of the Ontario Vegetable Growers' Association, the following officers were elected for the ensuing year: Pres., George Syme, jr., West Toronto; 1st vice-pres., Albert Shuter, Bracondale; 2nd vice-pres., Robert Somers, Todmorden; sec-treas., Frank F. Reeves, Humber Bay.

President Delworth gave a very able address on the past year's work. He noted the fact that the provincial executive had visited Ottawa during the season and interviewed the minister regarding the Fertilizer Act and also asked to have vegetable seeds placed under the Seed Control Act. As a result of this visit an amendment to the act has been introduced, the minister of agriculture placing vegetable seeds under the Seed Control Act, especially as regards germination.

The secretary was instructed to get all possible information in respect to a by-law concerning vehicular traffic in Toronto; the rigid enforcement of this "keep to the curb" by-law being particularly hard on gardeners and all horse traffic, especially during the season of slippery weather.

The meetings of the past year have been

well attended, owing a great deal to the interest taken in the awards for different vegetables shown at each monthly meeting, the vegetables chosen for these monthly meetings being those in season at the time.

At the annual meeting of the Ottawa branch of the Ontario Vegetable Growers' Association held on Dec. 4, the following officers were elected: Pres., Wm. Trick, Ottawa South; vice-pres., J. M. Fuller, Aylmer, Que.; sec-treas., W. J. Kerr, 253 Bell St., Ottawa; provincial director, W. Hull, Billing's Bridge, Ont. The president and secretary were re-elected. At the meeting, James Cox, provincial director, gave his report of the Toronto convention. Mr. W. T. Macoun, of the Central Experimental Farm also gave a report of that meeting.

The London branch of the Ontario Vegetable Growers' Association held its annual meeting on Dec. 4. The following officers were elected: Pres., F. G. Fuller, vice-pres., Wm. Trott; sec-treas., S. D. Dawson, Tamb-lings, R.R. No. 4. There are over 100 members on the roll and the association looks forward to pleasant and profitable meetings this year. "Co-operation" is the password of the London branch. The members intend buying together this year as they did last, but on a much more extensive scale, such goods as berry boxes, fertilizers, insecticides and so forth.

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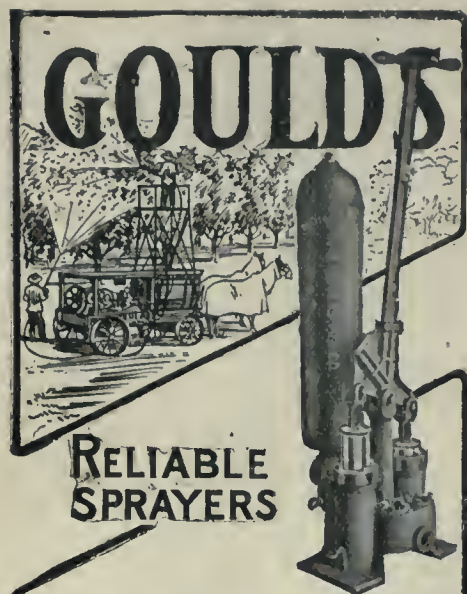
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Uniform Judging of Fruits

The score cards for judging fruits that are proposed by the Nova Scotia Fruit Growers Association and that were published in the December CANADIAN HORTICULTURIST have been approved of by most pomologists who have seen them. The following comments have been received among others, by Mr. R. W. Starr, Wolfville, N.S., who had most to do with drafting the score cards:

Prof. W. S. Blair of Macdonald College.—"I am glad to know that some definite move is being made to develop a uniform system of judging fruits. I have gone carefully over the scale of points submitted, and do not see how they can be improved upon. It seems that everything is covered by the proper number of points."

Prof. H. L. Hutt, O.A.C., Guelph.—"The scale of points proposed by your association is a good one and a move in the right direction. I believe that the values you have assigned to the various points are nearly as they should be. I think there is one point omitted, however, and that is the polishing of specimens. This should be discouraged as the bloom is part of the fruit and perfect specimens of certain varieties show it more or less clearly. At the Ontario Horticultural Exhibition in Toronto, I judged all of the plate collections of apples and although I had not time to adopt your score card in judging all specimens, I made use of it in close cases, and as far as I know the results were entirely satisfactory."

In a letter to THE CANADIAN HORTICULTURIST Mr. W. T. Macoun, horticulturist at Ottawa said: "The score card prepared by the Nova Scotia Fruit Growers' Association to be used in judging fruits is a very good one, the explanation of the terms used being a very good thing."

THE CANADIAN HORTICULTURIST received the following letter from S. B. Hatheway, secretary of the New Brunswick Fruit Growers' Association: "We have no meeting scheduled for our executive until February, but I have submitted the proposed score

card to the members of same, and find that all are favorable towards it. My own opinion is that it is not only practical and useful, but will establish a uniform standard, especially in eastern Canada, and also be an incentive for the exhibitor, professional or amateur, to show high scoring fruit only. It is probable that the New Brunswick Fruit Growers' Association will adopt the proposed cards."

A Book You Should Have.—Readers of THE CANADIAN HORTICULTURIST, who have not already done so should write to the Northern Electric and Mfg. Co., of Montreal, and secure a copy of the book on rural telephones and telephone systems for farm use which they are offering to give away. This book treats of a subject of vital importance to every farmer. To-day is the day of modern machinery, labor-saving devices and home comforts and conveniences of all kinds on the farm, and the farmer, who neglects to avail himself of every opportunity at his command is placing himself in a position where his neighbors will quickly surpass him. The use of the telephone on the farm has already been proven to be not only a tremendous convenience, but a very, very valuable time and money saver as well. Moreover through its use the farmer is enabled to be in touch with a thousand and one matters appertaining to his business, which otherwise would cost him heavily through ignorance of their conditions. This booklet not only tells about the advantages of telephones, but also gives the farmer a great deal of valuable information in regard to the steps necessary to take in organizing a telephone company in his own community. We believe that this book, Bulletin 2216, ought to be in the hands of every farmer, and would strongly recommend those of our readers, who are not already familiar with its contents to send for it at once.

Send photographs and notes on spraying for next issue.



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WM. FLEMING, Nurseryman, Box 54, Owen Sound, Ontario

The Canadian Horticulturist

Vol. XXXIII

FEBRUARY, 1910

No. 2

Lime-Sulphur vs. Bordeaux for Summer Spraying*

L. Caesar, Ontario Agricultural College, Guelph

BEFORE proceeding to the discussion of the value of lime-sulphur as a summer spray for apple and pear orchards let us first briefly call to mind the main fungous diseases of apple and pear orchards that require a summer treatment. In apple orchards the main one is clearly apple scab or black spot, as it is sometimes called. Less important diseases are the leaf spot and Baldwin spot. Black rot canker is a very serious disease attacking the trunk and branches but its main treatment must be before the buds burst; yet, as the summer treatment is also important we shall include it in our list. In pear orchards we shall only deal with pear scab, omitting the different kinds of leaf spot, because these are not often serious and lime-sulphur has not been tested on them. Pear blight, twig blight or fire blight, which are all the same disease, is not caused by a fungus and apparently cannot be controlled to any appreciable extent by spraying, so it is omitted.

In spraying for any of the above mentioned diseases it is clear that no mixture can be given a fair chance unless it is applied at the right time and in a thorough manner. Hence a word or two about these points.

To prevent most fungous diseases the spray mixture must be applied before the disease gets any chance to make headway; in short, it should be applied early enough to prevent the spores getting a chance to germinate. Hence the date of the first application is usually of special importance. For apple scab the first spraying should be shortly before the blossoms open. If left until the blossoms fall the disease gets a great start for the first signs of it are on the leaves about the time of the opening of the first blossoms. The second spraying should be just after most of the blossoms have fallen, which is the proper time to spray for codling moth; the third, either two or three weeks later. Of these three applications the first and second are by far the most important and should never be omitted.

Leaf-spot and canker are controlled by the same sprayings as the scab, except that canker requires a special spring ap-

plication in addition to these. It should be noted that leaf-spot is usually caused by the same fungus that causes the canker, namely, the black rot.

Baldwin spot appears much later in the season and so requires separate treatment. The first spraying for it should be about July 1st and the second about two weeks later. It is seldom, however, that it is so severe in Ontario as to make spraying necessary.

Pear scab begins earlier than apple scab and so requires that the first spraying should be made just as the buds are ready to burst. The second application should be just before the blossoms open, the third at once after the blossoms have fallen and the fourth about three weeks later. The early first application seems to be necessary for even fair results.

We all know that it is not only necessary to spray at the right dates but

orchards as a summer wash especially the last two years. The results given are sufficiently good to show that it has much merit as a fungicide for apple diseases. They do not, however, show that it is a better fungicide than Bordeaux, so that those who "swear by Bordeaux" may still continue to do so.

SPRAYING FOR APPLE SCAB

Taking up first the results upon apple scab: Prof. W. M. Scott, of Washington, D.C., and Dr. Brooks of New Hampshire Experiment Station have each made a good many careful tests of both the self-boiled and commercial lime-sulphur upon this disease. Each report the commercial wash as giving almost as good results as Bordeaux. The self-boiled in last year's experiments, (1908) did not give quite so good results although it showed a fair degree of merit. It was, however, made with cold water instead of hot, which would almost certainly have given better results. I have not seen the reports of this year's work (1909) but from Dr. Waite's remarks at the American Pomological Society convention held at St. Catharines, I infer that Professor Scott has been much pleased with the way the self-boiled mixture has also controlled the scab.

In experiments conducted by myself at Guelph this summer I sprayed eight fairly large Snow apple trees with the Vanco brand of commercial lime-sulphur. The west side received the three applications at the times mentioned above, the east side owing to my enforced absence had to go without the middle spraying. For the first application a strength of one to twenty-five was used. This burned the leaves slightly so one to forty was used for the other sprayings and no injury resulted. The spraying was very thoroughly done. In September the fruit was examined and on the west side where three sprayings were given less than one per cent. of it was scabby; on the east, where the important spraying just after the blossoms fell had to be omitted, nearly fifteen per cent of the apples were scabby. The fruit moreover was free from russeting and the surface smooth and glossy. Similar results have been reported to me by correspondents. So that there is practically no doubt that

Constantly Improving

Congratulations on the steadily increasing value of THE CANADIAN HORTICULTURIST.—W. A. MacKinnon, Canadian Trade Commissioner, Birmingham, England.

also to do it thoroughly. Most of us who have done much spraying know that it is very seldom that a really thorough job is done. The trees are often only half sprayed. Perhaps this in a number of cases is due to the old motto: "Stop spraying just before the leaves begin to drip." This is not a safe motto and our first rule should be: "Make sure that every leaf and fruit is thoroughly covered;" and second, "try to do this with as little waste as possible." One cannot emphasize this thoroughness too much. No man deserves real good results without it nor indeed is he likely to get them.

BORDEAUX VS. LIME-SULPHUR

Now let us pass to the mixture and the results. Bordeaux has for so long been the standard fungicide for all the above-named diseases of the orchard that it sounds almost startling to us at first to hear that it has a close rival in lime-sulphur. This wash either in the commercial or self-boiled form has been considerably experimented with in apple or-

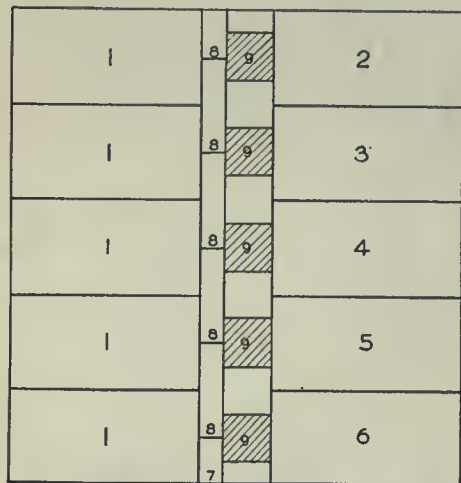
* A portion of a paper read at the last Convention of the Ontario Fruit Growers' Association. It will be continued in next issue.

(Continued on page 39)

A Plan for Raising Poultry Among Fruits

E. G. Cooper, Oakville, Ontario

A COMBINED system of poultry and fruit raising may be outlined as follows. Take ten acres of good land. Sandy loam is most desirable. Run a division thirty feet wide through centre. Divide each half into five equal parts. (See the diagram). In the space opposite each division build a poultry house twenty feet wide and the desired length for 200 poultry making a



Plan for Ten-acre Fruit and Poultry Farm

1. About one acre in each division, containing apples, 40 feet apart each way, with plums, pears, peaches and cherries half way between the rows. Remove these fillers when apple trees need the room, say, ten years after planting. 2. Black currants. 3. Red currants. 4. Gooseberries. 5. Red raspberries. 6. Black raspberries. 7. Driveway, ten feet wide. 8. Temporary gates that can be opened or taken down when fowl are to run in divisions on that side. 9. Poultry houses.

total house space for 1000 fowls. In each division on one side of the central space, plant small fruits, such as black currants, red currants, gooseberries, red raspberries and blackberries, and in the division on the other side plant pears, plums, peaches, cherries and apples. Do not plant strawberries, as this system would not be beneficial for them. The best breeds of fowl in my opinion are Banded Plymouth Rock, Minorca, Wyandotte, Orpington, Brown and White Leghorn.

Have the houses so constructed that the fowls may be let out into each division. Divide the divisions with wire netting as high as is required.

As soon as the soil can be worked in spring, cultivate between the rows of fruit and sow every morning the fowls' morning meal which should be grain. Good wheat is preferable to anything else in this line. Let the fowls work for their living by scratching and gathering their food. Exercise is good for them, and if the soil is fairly dry they will dust themselves. The noon meal should consist of soft feed, such as bran mash, scraps from dining table, and so on. A little pepper is good. In the evening feed the grain by sowing as in the morning. On the other side plow and culti-

vate as soon as ground is dry and sow to grass seed or any other green crop or to grain.

As soon as the small fruits start to bloom shut off the runs into the small fruit divisions and let the fowls run in the divisions on the other side. When the small fruit is all gathered, change the runs to the divisions on the small fruit side. Then sow buckwheat in the spaces between the pears, apples, etc. As soon as any grain appears, change the runs again or let the fowls use both sides.

Plow the buckwheat under as a cover crop before frost sets in for the benefit of small trees. A few mangels can be grown for winter use as they are very beneficial as a regulation in winter time.

The fowls running on the land between the trees and bushes will fertilize them as well as destroy millions of insects which would otherwise be destructive. The production of eggs can be counted as a clean profit as the fowls would pay for themselves in the benefit the fruit would derive from them.

Spraying the Vineyard

In the course of an excellent address on "Grape Growing in the Chautauqua Grape Belt," Mr. D. K. Falvey, Westfield, N.Y., gave the Ontario Fruit Growers' Association at its last convention the following information on vineyard pests and spraying:

"All vineyards should be sprayed at least twice for the 'root worm' and several times if affected with rot. Poisoned Bordeaux is used for the fidia or root worm, and also for the grape berry moth, which produces wormy grapes. The first application is made when the grapes are just past full blossoming, and the second application is made about ten or twelve days later. The material costs about \$1.30 cents an acre for each application if poison is used with the Bordeaux; with Bordeaux only, about 70 cents an acre. With water handy and a good walking team two men can spray fifteen acres in a day. From ten to twelve acres a day is, however, a fair average.

"The benefits from spraying are many. It will control the root worm, destroy the grape berry moth, prevent mildew, check black rot, prevent grapes shelling and keep the vines healthy. Sprayed vineyards have a better growth of foliage, which stays on the vines from one to three weeks longer than on unsprayed vines, thereby fully ripening the fruit and the wood.

"The 'thrip' or leaf hopper has damaged thousands of acres. This insect works on the under side of the leaf. It sucks the juice after the leaves fall but

remain red and unmarketable. The leaf hopper can be controlled by spraying the under side of the leaf with whale oil soap, using from twelve to fifteen pounds to 100 gallons of water. This should be applied before the hopper gets wings. Last season I killed seventy-five per cent. of the hoppers by this treatment.

"The most serious pest with us is the root worm or fidia, which has ruined thousands of trees in the grape belt. This



Hand Power Barrel Spraying Outfit
Manufactured by Goulds Manufacturing Co., Seneca Falls, N. Y.

year it was not so much in evidence. As a result of experiments by the state of New York it was demonstrated that the root worm can be controlled or at least reduced in number below the danger line. This work is performed by hoeing out the pupae when in the turtle stage, and by spraying just before the beetles feed on the leaves. Vineyard work should be done intelligently and at the proper time. No business will run itself."

The native black currant of Saskatchewan, though different in flavor from the cultivated sorts, is fully as palatable, and yields much better.

Orchard men in the strictly dry belt of British Columbia claim an advantage over slightly wetter sections where summer rains are not heavy enough to soak the ground yet necessitate much cultivation to preserve a dust-mulch to retain the winter moisture or irrigation water. Practical orchardists hold that after the one, two or three (in the case of an open soil and a bearing orchard) irrigations necessary, a stir with harrows every ten days or two weeks, keeps so perfect a mulch that trees can bring large crops to full size even in the driest season.

Spraying Ten Acres of Apples: Cost and Results*

Max C. Smith, Burlington, Ontario

AN orchard of ten acres will contain on an average 400 trees. To operate a power outfit, the labor of three men is required—two men to handle the spraying rods and one to drive the horse. The labor of the first two at \$1.50 per day would cost \$3; the team and man, \$4.50; total, \$7.50. The capacity of a power outfit should average about 1,500 gallons daily. The cost per gallon therefore would be one-half cent.

For my first spraying, I use the commercial lime-sulphur at the strength of one to eleven. This is used just before the buds are opening. The concentrated lime-sulphur costs \$10 a barrel of forty gallons. Diluted at the strength mentioned, this would make 480 gallons of spraying mixture which would cost 2.08 cents per spraying gallon. Add this to the cost of labor per gallon and we have a total cost of 2.58 cents per gallon. The average tree will require five gallons of the mixture. At 2.58 cents a gallon, the cost per tree for the first spraying would be 12.9 cents.

For the second spraying for codling moth and fungi, which is done just as the blossoms have fallen, I use commercial lime-sulphur at the same cost per barrel but dilute it one to thirty, which makes 1,240 gallons at a cost per gallon of .83 cents. To this I add arsenate of lead which can be bought in small packages at 14 cents a pound or less. I use five pounds of this to 100 gallons of water. This makes the arsenate of lead cost .7 cents a gallon. The labor costs just the same for the second and third sprayings as for the first. For this second spraying, the total cost is 2.03 cents per gallon of spraying material. At five gallons a tree, this makes the second spraying 10.15 cents a tree.

The third spraying should be given ten days to two weeks later than the second. The cost is the same as the second, namely 10.15 cents per tree. The total cost therefore of the three sprayings per tree is 33.2 cents for the season. At this rate 400 trees on ten acres would cost for spraying \$132.80. By using four gallons per tree and eliminating the third spraying which is not necessary in all seasons, the 400 trees may be sprayed for \$73.76.

EQUIPMENT

I prefer gasoline engines for power because they are most efficient and the cheapest to operate. A gasoline engine can be operated for ten or fifteen cents a day for gasoline. The gasoline engine may be used for other purposes when not needed for spraying. I prefer a pressure of 175 pounds on the average.

*The substance of an address on "Spraying Ten Acres of Apples: Cost, Equipment and Results," given at the last convention of the Ontario Fruit Growers' Association.

High pressure is particularly necessary for the second spraying as you cannot drive the material into the calyx cups with a pressure of only sixty or seventy pounds. Use a pump of good capacity and one that will give the high pressure required. For best results use two large nozzles on each hose. Use the best quality of hose that you can buy. Spray thoroughly and use lots of material.

RESULTS

During the past season I sprayed about 100 acres of fruit, including apples, plums, pears, cherries, grapes, currants and gooseberries. The results with the currants were especially marked. The foliage was very heavy, the currants large and I marketed them at higher prices than ever before. I did not have a blistered currant in the lot. In the case of the cherries, only those that were thoroughly sprayed were worth buying. I spray cherries just before the buds swell and again just after the small cherries form. Only two applications are made. I use the same strength as for apples.

I had equally good results with apples. One orchard that I took over and which had not been sprayed, pruned, plowed or fertilized in twenty years, gave me 2,000 barrels of fine fruit, the result of one year's attention, including spraying. I controlled the fungus completely and the codling moth to the extent of about eighty per cent.

It might seem a big item of expense to spend thirty-three cents a tree for spraying, but let us see. A bushel of culls is

worth fifteen cents, and a bushel of good apples is worth fifty cents, a difference of thirty-five cents. The average tree should produce ten bushels and if you convert one bushel of culls into one bushel of good apples, you are making thirty-five cents. If you have a tree of apples bearing ten bushels and do not spray them, you will have half culls. If you convert that five bushels into good apples, you will make \$1.75 profit on that tree, or \$700 profit on 400 trees. This is over and above what you could get if you did not spray. Take the cost of spraying off and it leaves a net profit of \$567. Besides this, you will strengthen the trees and make them produce better another year.

Controlling Gooseberry Mildew

About three years ago, mention was made in THE CANADIAN HORTICULTURIST of the success of Mr. Joseph Tweddle, Fruitland, Ont., in controlling gooseberry mildew. As his method of control has been verified by later experience, it is well worth mentioning again.

The remedy used is the lime-sulphur wash prepared as for San Jose scale. One application is sufficient and this should be applied thoroughly just as the buds are swelling. The 15—20—40 formula is used in making the mixture. This is boiled vigorously with steam for one hour. Mr. Tweddle's five years experience with this remedy for gooseberry mildew should encourage all persons who desire to grow the English varieties which are susceptible to this disease.



The Power Sprayer is the Most Efficient and Economical for Large Areas

The one illustrated is manufactured by the Friend Manufacturing Co., Gasport, N.Y.

Pruning Apple Trees

Wm. Rickard, Newcastle, Ont.

Pruning well and properly done is a matter of great importance but one that is very much neglected. In driving

sidered I believe this to be the most convenient and under some conditions (I may say, quite general conditions) the best time.

Under some special conditions, I pre-

tree and to restore the balance between the top and roots, the latter having been materially reduced in the process of digging and planting. Allow branches to come from the trunk of dwarf trees near the ground, thus protecting the trunk from sun scald and keeping the load of fruit low which adds to the life and strength of the tree.

The annual pruning consists of removing all superfluous branches and heading back vigorous growths, keeping the trees uniform and pyramidal in form, not allowing any dwarf tree in orchard blocks to exceed fourteen feet in height, and choosing desirable varieties. Following the above system with thorough spraying and heavy thinning of fruit when the fruit is about one-third grown, combine practices which have resulted in pleasure and some profit to growers of pears.



A Manitoba Orchard that Bears Good Crops of Fruit and Shows What Can be Done in That Province
The variety in foreground is Blushed Calville—Orchard of Mr. A. P. Stevenson, Dunston, Man.

through the country how many orchards the close observer will see that have never had a saw in them for many years until the trees have become so thick and full of limbs that it is quite impossible to get up through them to get the fruit should there be any worth picking!

Pruning should be commenced and the tree properly formed while it is young and continued a little each and every year according to requirements. A common fault and mistake is to leave too many limbs in the beginning which becomes apparent when they have grown somewhat large; then rather than remove some of them they are trimmed off like poles all the way out from the trunk to near the end. It would be better to remove some of the limbs as soon as the mistake was discovered, leaving plenty of room for those left with fruit-bearing wood all the way out.

Another mistake I have made is to keep the centre of the tree entirely clean of all fruit-bearing limbs. I have come to the conclusion that there is room for some good fruit in the centre of the tree as well as all around on the outside.

As to the proper time or the best time to prune there is and always has been a difference of opinion. There is an old saying, "prune when your saw is sharp," and I know very successful orchardists who prune any time during the winter months as they find time to do it.

I have usually done the most of my pruning in the latter part of February or the first of March. All things con-

fer the month of June. If the tree has a vigorous growth of wood and is inclined to be barren of fruit prune well in June. This will tend to check the wood growth and help the fruit bearing. I have had good results in this way bringing trees that were inclined to be barren into quite heavy bearing.

The man who undertakes to prune should use his brains as well as his hands. He should first size up the tree then go to work, aiming to have a well balanced tree with fruit-bearing wood evenly distributed throughout the centre and circumference, thinned out sufficiently to admit of a free and full circulation of air and an abundance of sunshine.

Growing Dwarf Pear Trees

Wm. F. W. Fisher, Burlington, Ont.

The average dwarf pear tree is short-lived, due to the fact that this is a characteristic of the quince root on which it is propagated, coupled with the many disasters common to all pear culture. In planting, cultivation and pruning, the attainment of rapid growth and early returns should therefore be constantly kept in mind. They require rich, dry soil, vigorous cultivation and judicious pruning.

Nursery stock should be pruned root and top before planting, removing all torn and bruised roots and occasionally shortening a coarse tap root which might prevent getting the tree sufficiently deep in the ground. The top should then be pruned to form a strong symmetrical

Planting in Annapolis Valley

R. J. Messenger, Bridgetown, N.S.

I prepare my land two years before planting at least. The first year I raise grain and, if possible, roots the next. In plowing for both grain and roots, I have the dead furrows come where I intend to put the rows of trees. These dead furrows are really the subsoil after two plowings, but the action of frost and cultivation has enriched it and made it available, so that in setting out the trees in these dead furrows, I do not have to set the trees deep or in poor subsoil as I would under ordinary circumstances, while the subsequent plowing-up against the trees brings them gradually into deeper rich soil.

Planting the trees six inches deep in this low valley between two ridges precludes the necessity of subsoiling the whole piece and by the time I have plowed twice toward the trees and thus levelled the land again, the trees are in ten or twelve inches of good soil. The necessary cultivation for the previous root crop has mellowed and fined the soil, leaving it in best condition for young tree growth. Of course, it is understood that land must be well drained either artificially or naturally.

In planting even in this way, I puddle my trees in a porridge-like mixture of rich soil and water just before planting and also place next to and around the roots the best soil in vicinity, leaving the poor bottom soil for the top.

One thing we learned from one year's experience in spraying is that thoroughness is very essential if satisfactory results are to be expected.—M. B. Clark, Wellington, Ont.

Saskatchewan already has its apple growers, and they do not need to stand and hold the apples on the tree when the prairie winds blow, because they have provided shelter belts of hardy trees.

How to Grow and Manage Azaleas

C. M. Bezzo, Berlin, Ontario

DURING the growing period the azalea should have a temperature of from fifty to sixty degrees. Other conditions being favorable it will grow and bloom in a temperature anywhere from forty to eighty degrees, but these extremes are not recommended, particularly the latter, which is not only hard on the plant, but the plant is in such a hot, dry atmosphere that the red spider, which usually does not trouble the azalea, becomes its implacable enemy. When the presence of this pest is evident, spray with clear water or a weak solution of soap and water rinsing after with clear water or the top of the plant may be dipped in the water, which insures the thorough wetting of every part. During this period the plant should be given all the light and sunshine possible with fresh air whenever it can be given without a draft.

Liquid fertilizer may be given if great care is exercised. The great trouble with many amateurs is they think if a little is good twice that quantity is that much better. Many a man and many a woman has found it to be a fatal maxim when the plants became chronic dyspeptics, neither fit to live nor ready to die. For liquid fertilizer use cow manure or guano. Use the latter according to directions on package.

To make liquid fertilizer from cow manure fill a jar or pail full of manure, and pour enough boiling rain water over it to fill the receptacle. This will make a liquid strong enough to kill almost any plant. The color will be almost black. When ready for use add enough of this liquid to a can of water to give it a light brown color. Of this strength it may be used to give the plant a thorough soaking once in two weeks. If the room is of moderate temperature and the atmosphere kept moist, watering once in ten days or two weeks ought to be sufficient. But no cast iron rule can be made regarding the frequency with which watering may be done, owing to the extent to which conditions of soil, temperature and atmosphere may vary.

THE BLOOMING PERIOD

During the blooming period the treatment is somewhat similar to that mentioned. Continue to give it light and sunshine. Liquid fertilizer may now be given once a week with a little closer attention to the watering. The plant will consume more now than during the growing period, and while it must not be kept wet, the soil must not be allowed to dry right out or the buds will blast and the bloom wither. If red spider is suspected, try to get a cooler situation, as wetting the leaves will not injure the flowers. If the atmosphere

is dry, place a shallow pan of water on the radiator, the heater or in some place where the evaporation will be fairly rapid, say about one and a half pints in twenty-four hours for 1500 cubic feet of air space.

After the blooming period is over the plant completes its annual growth and should now receive water less frequently. When the weather becomes warm put it out in the open air, a shady place on the porch where it will get only the early morning or late afternoon sun, will answer. Or it may be sunk in the flower border. When the latter is done select a place sheltered from the noon-day sun—but not dense shade—and put half an inch of ashes under the pot to prevent worms entering at the bottom. Leave it here until about the first or middle of September, by which time it will have completed its annual growth.

THE RESTING PERIOD

When the plant has completed its

yearly growth and has commenced to take its periodical rest it may be set away on some back shelf, where it will be out of the way, but not entirely forgotten. During this period it should not lose its leaves, although it will be at a complete standstill. Water should now be given very seldom, once in three weeks should be sufficient if the temperature is not over sixty and the atmosphere moist. About the last of November begin to look for new growth. Most sorts do not start until about the new year, but some varieties are earlier than others, and at the first sign of returning animation bring to the light and water more frequently.

If at any time the azalea should lose its leaves in considerable quantities it is a danger signal which must not be lightly regarded. The indicator points to too much water or poor drainage, and the matter must be remedied at once. The azalea's demands are few but they are imperative.

A Prize Winning Lawn and Garden

ONE of the prettiest homes in the City of Guelph is shown in the illustrations on this page. It is the residence of Mr. J. A. Hewitt, who has won the first prize in the lawn competition in his ward in that city for years. One of the judges in the lawn and garden competition, conducted by the

Guelph Horticultural Society, is Mr. Wm. Hunt of the Ontario Agricultural College, who in a recent letter to THE CANADIAN HORTICULTURIST wrote in reference to this home: "Mr. Hewitt is quite an enthusiast and expert in the culture of plants and flowers. Although Guelph has many pretty residences there



Front View of a Prize Winning Home and Lawn—Residence of Mr. J. A. Hewitt, Guelph



Corner of Back Lawn of Mr. Hewitt's Residence, Showing a row of Prize Sweet Peas

are few that can surpass Mr. Hewitt's in point of excellence, from a floral point of view." The photographs were taken early in the season.

Hanging baskets, verandah boxes and window boxes are striking features of the front view. Around the verandah may be seen red geraniums and coleus planted alternately, with silver-leaved geraniums in front for a border. At the corners of the steps are cannas.

The side lawn is bordered with sweet peas on the fences, in front of which are mixed annuals, such as scabiosa, stocks, antirrhinums, petunias, mignonette, zinnias, phlox, verbenas, together with roses, geraniums, coleus and other plants and for a border, more silver-leaved geraniums.

About the back lawn is surrounded with about the same material with a few more annuals added. It contains also beds of asters, including Sutton's Giant, White Ray, Ostrich Plume and Comet. Sweet peas are on every fence. Tender roses are grown in a glass frame.

SWEET PEAS

Sweet peas are a hobby and a specialty with Mr. Hewitt. The rows of sweet peas on his grounds have a total length of about 300 feet and were eight to ten feet high. On the south side of the front lawn, at the time the scenes published herewith were photographed, Eckford's best peas were growing. These were mixed by Mr. Hewitt himself, to make the choicest collection. On the west side of the front lawn was a complete row of Eckford's beautiful red, King Edward VII. All of them were covered with splendid bloom among which many

four, five and six-bloom sprays were to be found. The stems were unusually long, some of them measuring eighteen inches.

In the garden at the rear, sweet peas were grown in variety, among which stood out prominently Eckford's Apple Blossom, Bolton's Pink, Black Knight, Phenomenal, Brilliant Blue and King Edward Spencer, and, in fact all the Spencer types were to be seen, arranged so as to give a most beautiful effect.

At the Canadian National Exhibition last season, Mr. Hewitt won first prize in sweet peas in both sections called for by the prize list. When commenting on these entries, the *Toronto Star* said: "These dainty little blossoms are notoriously difficult to raise so that the splendid blossoms displayed are of a special interest. From the purest white to a deep rich purple, and a lovely shade of blue, nearly every variety is there in large beautiful bunches. The fortunate prize winner, Mr. J. A. Hewitt of Guelph, earned the distinction fairly." With sweet peas Mr. Hewitt has won also many prizes at the Guelph Central Fair.

The achievements of Mr. Hewitt are the result of constant attention to the details of plant management, and to his great enthusiasm for the work and his love for plants and flowers. In later issues of *THE CANADIAN HORTICULTURIST* it is expected that Mr. Hewitt will tell how he grows sweet peas and other flowers so successfully.

Cedar and spruce hedges are trimmed early in April or May before growth commences.

Protection of Roses

Editor, *THE CANADIAN HORTICULTURIST*: I read with pleasure the article on the protection of roses in winter by "Amateur" in the November issue, and am glad it is not such a big order to keep roses through these winters. I have been out here nearly five years and I came from close to the famous nurseries of Pauls & Sons, rose growers, Welham Cross, Herts, England. There are acres of them growing there and when I came out here I looked in vain for the "queen of flowers." I saw a few but only during a part of the year; the other part, being the winter, they were tied up in bags, or in other words, put to sleep for six months. I thought that it must be a terrible trial to grow roses and people told me that if they did not do that the winter would kill them.

I pictured to myself the number of times in England that the head gardener had sent me to train roses up the walls as high as the bedroom windows. I could see the Glories and creamy white of the Marechal Neil and the apricot color of William Allan Richardson, and the times I have had in searching the hedge-rows for the wild dog rose, briar and the Manetti stock to bud on in the following August and then to come back in thought to Canada when the winters killed the lovely rose was a shock. But since I have read "Amateur's" remarks I feel refreshed, and I would like to ask "Amateur" when is the best time of year to prune them. ("Amateur" has promised an article on this subject.—Editor.)

We always used to prune them in March at home and we cut the bush roses back to the third eye or bud from the base of each shoot, and weaker ones harder still but here I have seen them just taking the tips off each shoot. I think this is a waste of good stuff, as it leaves the bushes so straggly. I should think that if that were persisted in for a few years, one would have to use a stepladder to pick the bloom. I believe in cutting them down as it keeps the bush in good shape and the blooms are near the base of supply, i. e., the roots. If "Amateur" would give a list of really good roses I would be thankful to him, as I am thinking of getting some.—"A Lover of the Queen of Flowers" (An Englishman), Guelph.

Most annual flowers are easily grown. Try some new kinds this year.

The American mountain ash, better known to some as the rowan tree, is hardy in Saskatchewan.

Sweet alyssum is easily grown indoors and may be used effectively for the edges of window boxes and hanging baskets.

Street Tree Planting and Boulevarding in Winnipeg*

George Champion, Superintendent of Parks, Winnipeg

THERE is nothing which tends more to beautify the general appearance of a city, to impress its visitors, to add to its healthfulness, and to inspire its residents with a desire to improve and beautify their own homes and surroundings, than that of streets bordered with well kept lawns, and uniformly planted with clean and healthy trees.

In many eastern cities, different systems of boulevarding, tree planting and maintenance are in operation more or less successfully but in very few is the system comprehensive or general, and it is this point that I particularly wish to emphasize as upon its general application over the entire city depends its success.

This paper is not an academic treatise on how to construct a boulevard, or how and when to plant street trees, or even what trees you should plant, as I think these points are usually best determined by local conditions, but just a few facts about what has been accomplished by the Parks Board of Winnipeg, in their efforts to improve and beautify the general appearance of the city streets.

The term "boulevard," as it is generally used, denotes a drive or parkway,

marginied with grass and trees, and is usually constructed and maintained in its entirety by the park authorities, for the use of light traffic only. In Winnipeg, the term is applied to the strip of lawn and trees which every paved street in the city has.

Our streets are wide, sixty-six feet or more, and, with the exception of the main business streets, are all constructed with a space between the sidewalk and curb varying in width from six to twenty four feet, the width on an average being fourteen feet on each side. It is this strip that is parked and planted with trees. The sidewalk is built next the property line, and with the roadway and curbing, is constructed by the city engineer's department.

When a street is paved, the property owners on it usually petition the city council at once for boulevarding and tree planting. If, however, they fail to do this, the council take the initiative, and advertise for thirty days their intention to carry out such local improvements, and, at the expiration of this term, if no adverse petition is received, a by-law is passed placing the control of the boulevarding and tree planting in the hands of the public parks board. This control includes any and all trees already growing on the streets mentioned

in the by-law, no matter by whom planted.

All expenditures on the boulevards are charged by the parks board to the city council, and by them assessed against the property owners, payment for construction being spread over a period of seven years, with interest at five per cent., sinking fund at four per cent. Payment for the cost of tree planting is collected in one year, and the cost of maintenance is assessed annually, this being authorized by special by-law.

This system was originated and worked on a small scale in 1896 by the board of works of the city council. In 1898, the maintenance of the boulevards was turned over to the parks board, and in 1900 the construction, tree planting, and sole control of the system. Since then, it has, like the city grown very rapidly.

At the end of 1908, we had approximately eighty-six miles of boulevards, planted with 20,000 trees, about 6,000 of these being planted by property owners before the streets were paved.

Prior to 1904, all new boulevards were sodded, but since then, more and more seeding has been done, till now practically all are seeded, it being conclusively proved that seeding, in spite of the adverse conditions prevailing on a public street, makes a much better and cleaner

*A part of a paper read at the eleventh annual convention of the American Association of Park Superintendents, held at Seattle, Wash., last August.



Wellington Crescent Boulevard, one of the many Beautiful Streets of Winnipeg

sward, besides materially reducing the cost as compared with sodding.

In 1908, 29,948 square yards were graded and seeded by day labor, at a cost of 10.67 cents per square yard; 21,385 square yards were graded and sodded by day labor, at a cost of 12.71 cents per square yard; 21,865 square yards were graded and sodded by contract, at a cost of 13.53 cents per square yard; making a total of 73,198 square yards, at an average cost of 12.12 cents per square yard, or 18 cents per front foot, this area having a total frontage of 49,229 feet, or a little over nine miles. This rate, however, was very low, the average cost of construction during the last three years being about 25 cents per front foot, for a fifteen-foot boulevard.

The cost of tree planting for 1908 averaged 2.5 cents per front foot, over a frontage of 79,302 feet, about 5¼ cents per tree. This may seem a very low rate, explainable by the fact that we plant trees dug from the bush by the farmers, and for which we pay about thirty-five cents per tree. This plan was

adopted when it was found that nursery grown trees from the south or east, would not thrive in our rigorous climate, but almost invariably winter-killed.

We use American elms, white ash, and basswoods, the former being the most satisfactory. Some Russian poplars are being experimented with. We have also a number of box elders; this tree, however, is not reliable, and no more are being planted on the streets, though we find it very useful as a filler in park work, owing to its rapid growth.

The system of maintenance is very simple. The city is divided into districts, with a foreman in charge of each. Tool boxes are placed in convenient locations, and the mowing, watering, tree spraying and pruning is carried out with an unvarying uniformity over the entire system.

The total cost of maintenance for the year 1908, was \$14,982.50 for a frontage of 404,728 feet, or 76¾ miles, giving an average of 3.7 cents per front foot over the entire city. This was also a very low rate, owing to local conditions, the average yearly maintenance

rate being about five cents per front foot.

This cost need not be very largely exceeded in any city, as our hot summers demand a maximum amount of attention to the grass, which would be, to a considerable extent, unnecessary in a moister climate. The expenditure for policing in winter, is also large, as much damage is caused to the trees by horses, and to the grass, by short cuts over the snow-covered boulevards.

The amount charged for maintenance against the individual street or lot, is arrived at by taking the area in square feet of all the boulevards. The amount charged against any street, will be in the same ratio as the boulevard is to the entire system, so that each lot owner pays for the actual area fronting on his property, and no more.

This system seems to give general satisfaction to the citizens, and the only change we have in view, is that of obtaining power to strike a flat rate for maintenance so as to obviate the great amount of clerical work now required in making up the assessment schedules.

What Amateur Gardeners Can Do in February

AS there is not much to do in gardening indoors or out this month, spare time can be utilized to advantage in planning for the garden that is to be. Recall the weak spots of the garden last year and plan to remedy them. Was there not some fence or out-building that should have been covered with vines, some corner of the lawn or some place in the border where one or two shrubs would have improved the effect, some parts of the vegetable garden that were not occupied by plants, or something else that was neglected last year? A little forethought exercised now will do more for these places than can be done on the spur of the moment when time for action comes.

Do not wait until the last minute before ordering seeds and plants for next spring's use. Secure catalogues from seedsmen and nurserymen and make selections early. Even though you may not intend to buy it is worth while getting these catalogues. They are interesting and contain much practical advice on the culture of the plants listed therein. As a first choice of seeds and plants, select those kinds that are well-known and well-tried. As a rule these are given the shortest descriptions in the catalogues. After satisfying your needs from the standard sorts, then choose a few novelties for experimentation and curiosity. All leading and reliable seed and nursery firms advertise in THE CANADIAN HORTICULTURIST. Con-

sult their advertisements on other pages of this issue.

Towards the end of the month sow seeds of verbenas, lobelias, cockscombs, double petunias, sweet sultan, schizanthus, and mignonette in pots or boxes in the window. These will come in useful in early spring for window boxes and hanging baskets.

About the same time or the first of March sow a few sweet peas seeds indoors for planting outside when the time comes. Put six seeds in each five-inch pot. By the time you would be sowing seeds outside you will have strong plants three inches or four inches high. When the time comes these plants may be placed ten inches apart in trenches. When planting knock the ball of earth out of the pot carefully, and do not disturb the roots.

WINDOW PLANTS

With the increasing heat of the sun, insect pests on house plants will become troublesome. Keep all growing plants, such as fuchsias, geraniums, calla lilies, and so on, well moistened at the roots. The foliage should be sprinkled or syringed two or three times a week with luke-warm water. Some weak tobacco water placed in the solution once a week will help to hold these pests in check.

Take proper precautions against extreme cold weather at night. The hot sun of some winter days often gives the amateur a feeling of security that makes him negligent in this matter. Should

the plants become frozen, keep them away from the heat, cover them carefully and keep them in the dark for twenty-four hours or until the frost is out of them. Do not place them in bright sunlight for a week or two afterwards.

Keep the leaves of house plants free from dust. Wipe them with a wet sponge once a week. Give them fresh air occasionally, but do not allow direct drafts to strike them.

Start fuchsias into growth. Prune back the tips of last year's growth so as to make a shapely plant. Give the plants more water than they had when resting, and place them in a warm position. When young leaves appear re-pot the plants into the same sized pot, first shaking them out from the soil in which they have been growing. When re-potting them, use soil composed of two parts of rich light loam and one part each of sand and leaf soil, mixed well together. Provide plenty of drainage. Water well when potted and not again until the soil shows signs of dryness. For red spider, a bad pest of the fuchsia, syringe the plants daily.

Fall propagated geraniums should be shifted into three and a half-inch pots and potted firmly in rather heavy rich soil. Cuttings may be taken from these plants in from three to five weeks.

A few tuberous-rooted begonias may be put in moss or sand to start them off



A good Illustration of Results in Gardening that May be Secured in One Season

In this garden last summer were grown an abundance of things for everyday use and for storing for winter. The plot was bordered with sweet corn. Planting was begun about the first of June, and throughout the season, in many instances, when one crop was all harvested another was ready to take its place. Among the vegetables grown were cabbage, cauliflower, celery, turnip, carrot, beet, parsnip, onion, radish, lettuce, parsley, tomatoes, beans, peas, squash, muskmelon, and early potatoes. The work of planting, etc., was done "after hours." Garden of Mr. F. Peat, Peterboro, Ont.

before potting. They are easily handled and give great satisfaction.

For most house plants a temperature of about fifty to fifty-five degrees at night and sixty to seventy degrees during the day will furnish the most desirable conditions for growth. Greater extremes between day and night temperatures are not conducive to best results.

Another lot of house bulbs may be potted early this month. Keep them cool and in the dark for three or four weeks, then bring to the light and perhaps you may have bloom in time for Easter.

If you want to keep your freesia bulbs after flowering, give very little water until the foliage turns yellow and then give no more. Place pots in a cellar until next fall, when the bulbs may be taken from the soil and re-potted.

SOME JOBS FOR ODD TIMES

If you saved seeds of annuals and other plants last year, clean them now and place them neatly in packages with names of the variety.

Repair any tools that were broken or damaged last season. Put the hoes, rakes, spades, weeders, the reel and line, and the lawn mower in shape for use when wanted.

Currant and gooseberry bushes may be pruned this month if desired. These bushes are hardy and will stand more abuse than others.

Insects and fungous diseases are no respecters of persons. They do not confine their depredations to the orchards and gardens of the commercial growers, but find as congenial conditions and as tasty food in the gardens of amateurs. To hold them in check we must spray. It is too early this month to do anything more than make preparations. Purchase a knapsack spray pump if the

garden is small. A barrel pump is better, however, and will last longer. Three or four neighbors could club together nicely in the purchase of one. If you cannot do the spraying yourself, employ some person to do it. If you do not know what to use consult the articles on spraying that appear on other pages of this issue, and also the advertisements of firms that deal in spraying apparatus and mixtures. Send questions to THE CANADIAN HORTICULTURIST.

Sure Bloomers for Winter

Len W. Berclay, Morrisburg, Ont.

Many flower lovers do not know the value of bulbs known as winter bloomers. With an outlay of two or three dollars, even less if that much cannot be spared, one is sure to have flowers at all times from the Christmas holidays until the green grass is growing again.

Nearly all bulbs, at least the best of them, are suitable for the amateur. From experience I would not advise trying to grow more than you have plenty of sunlight and window space for, although it is true a bulb will grow and flourish where many other plants will wither and die.

Among the narcissi or daffodils there are two or perhaps three varieties well worth trying. The paper white and the Grand Soleil d'Or are about the best of the polyanthus or bunch-flowered variety. As the name indicates, the former is a beautiful pure white variety while the latter is yellow with reddish orange cup. Of the single trumpet sort, Maximus takes the lead of over a dozen varieties tested. It is a large flower of perfect form color, rich golden yellow; the

perianth or cup is very large and deeply scalloped and frilled.

There are also the double daffodils of which it is hard to choose between Alba Plena Odorata, and double Von Sion, although lovers of a white flower will find the former a gem. The polyanthus varieties are about six weeks earlier than the trumpet sorts. Blooms of either variety last two weeks or even more if kept cool.

For early hyacinths try single white Romans. They are very early and last for weeks if kept in a cool room. Dutch varieties of hyacinths are very pretty but are slow coming into bloom.

I do not find tulips to make good indoor flowers, but no garden is complete without at least a few Darwin and parrot tulips.

Crocuses bloom under almost any treatment and are very cheap.

Freesias are early bloomers and easily grown. The perfume is most delicious. One pot of them will perfume a large room.

The Bermuda Easter lily is sure to bloom and very pretty. The Chinese sacred lily, which is of the narcissus family, is a favorite with many, but I have not found it satisfactory.

Bulbs which have bloomed in the house during winter may be planted in the outdoor beds in the spring and will there recruit and make fine plants the following spring. Cultural directions are supplied by any of the firms of whom the bulbs are obtained and THE CANADIAN HORTICULTURIST also gives advice on these points.

The ice plant is an interesting subject for rockwork or for edging. Give a sunny location and gravelly soil.

The Culture of the Melon for Profit*

J. Od. Beaudry, M.D., St.-Jacques de l'Achigan, Quebec

FOUR principal things have to be considered in order to assure success in the culture of the melon—the kind of soil, the best method, the best cut and the best care. A sandy loam soil is most favorable. Every means should be taken to render the ground suitable, whether by special manures or by peculiar improvements in order that the ground may contain all the best fertilizing principles.

METHOD OF CULTURE

The best method of culture is that which makes the plant profit from the solar influence, which facilitates the free circulation of the air, and which makes the fruit absorb solar rays. This method exposes them to the influence of light. The culture of the melon upon knolls appeals to all these conditions in preference to any other method. I recommend, therefore, hotbeds and windows (sashes) in preference to the flat ground. This kind of culture assures a greater quantity of fruit and gives more strength to the plants. The ascending direction of the sap and the descending direction of the branches, are the two great factors in this method.

By this method one can get at least ten melons a mound and even more. This is the smallest number I raise from my mounds; generally I have more. If you cultivate only one plant on a mound, your melons will be bigger but, if the fruit is to be sold, it is far better to leave two plants a mound which will give twenty melons. On an acre, at a distance of six feet from each other, you have 900 mounds. At twenty melons each mound this will yield 18,000 melons which, at ten cents each, will give a revenue of \$1800.00.

In spring as soon as the ground is in order and the weather favorable, I place my hotbeds six feet apart on the ground, which was well prepared in the fall. I then dig only the ground where the hotbed should be placed. I fill the hotbed with the best mould containing twenty per cent. of pigeon's dung thoroughly mixed with the mould, leaving two or three inches between the hotbed and the ground. The front part of the hotbed should be nine inches high while the back twelve inches. The width of the base of the hotbed should be twenty-six inches, and of the top nineteen inches. The depth at the base should be twenty-six inches and at the top twenty inches. Each pane of glass should measure fifteen by sixteen inches. The size of the hotbed can vary in size as one wishes, and consequently that of the frames. My

frames are made of one inch spruce boards.

SOWING THE SEEDS

Now, having made the surface of the mould even in the hotbed, I sow from ten to fifteen melon seeds with proper spacing. When the plant has sufficiently grown, I sort the plants, keeping the best ones. Then, gradually, I clear the ground so as to leave one or two a mound.

VENTILATION

As soon as the seeds begin to grow I move the window somewhat to allow the air to circulate through the corners of the box. I move the window thus between seven and eight o'clock in the morning. According as the sun gives more heat and as the plant grows, I move the window more and more.

At night I push the window back into its place about an hour before sunset so as to keep the heat inside the box. I then cover the hotbed with a heavy covering. The hotbed should be surrounded by dirt at least six inches thick and two-thirds of the height of the hotbed frame. The covering made with empty salt-bags should be thick enough so as to preserve mounds from low temperature, and should be put on the frame every evening, as soon as the melon seeds are sown, and then taken off after sunrise.

WATERING

We should never water nor warm melon plants at night, when the nights are cold, but in the morning. On the contrary, when nights are warm, we should water them an hour at least before sunrise, then close the frame and cover it. Rain water heated by the sun is preferable to all waters, because it contains more fertilizing principles. For want of rain water, we can use other waters—but waters which have been heated by the sun.

I water the melon plants with *purin* (French word)—a liquid manure—and common water; then, I warm with one-quarter of *purin* mixed with three-fourths of water. My melons are very aromatic and juicy. During the period of the culture of the melon, the watering should be made so that it may reach the interior of the mound three or four times, according to the dryness of the mound and to the temperature of the weather. The warming should be done every night or every morning, according to moisture of the night, because leaves are the soul of the plant or in other words, its pulmonary surface.

CUTTING AND PINCHING

When the melon plant has four leaves and the fourth one is big like the nail of a thumb, I cut the stem under the third; and I put dust-land on the wound;

yet one is not obliged to do that. We should never cut cotyledons (the seed leaves). The operation causes great harm to the plant. I never touch branches that come out from the arm-pit of cotyledons, because from these, appear the first female flowers; but, if they do not give any female flowers I pinch them without intrenching them.

When the fourth leaf appears on new branches I again cut the stem under the third leaf. This is the second cut.

New branches appear, and when they have four leaves, that is to say, when the fourth one appears, this time I cut above the third. This is the third cut. By this cut male and female flowers appear.

I make a fourth cut, also a fifth one. If the female flowers do not appear at the fifth leaf, I then pinch the branches just after the fifth leaf. It is necessary to see and to know how, and when, we should pinch. When the female flowers appear we should not pinch branches immediately, because you would destroy the coming fruit in bringing the plethora of the sap to the branch before the vessels of the peduncle (stalk) of the female flower have taken enough development to receive it with profit. Likewise too great dryness at the interior of the mound brings a considerable diminution of the sap; consequently, the death of the plant and of the female flower. Therefore we have to wait three or four days before the female flower opens in order to pinch the extremity of the branch. Then you fold slowly the extremity of the branch while having it form an acute angle on the right of the insertion of the peduncle in such a manner that the latter may appear to form the lengthening of the branch and we fix it thus by means of two small branches. This is the best way to have the fruit knotted. If on the mound there are no male flowers but only female flowers, and though draughts, bees, etc., would favor the transportation of the pollen; yet it is prudent to gather flowers from the nearest mound—also to shake the stamens on the pistil of the female flower, in order to assure fertility.

When the fruit is knotted, that is to say when it has acquired the size of an egg, we cut the branch about two or three inches above the melon. If other branches come forth in the arm-pit it is better to take them off. If there are branches not bearing fruit we should take out some of their wood with great precaution.

We should not forget that, if we wish to get excellent melons, the solar rays have to reach them entirely and continually. This is the reason why we should

*Extracts from an address delivered before the Quebec Pomological Society at La Trappe last summer.

prevent branches from forming bushes and regretful confusion that cause a great harm to the circulation of the air. This is why we should not leave more than one or two plants a mound.

MAKING THE MOUND

I come back to the making of the mound: when the leaves touch the glass I raise the box a little; then when branches reach the edge of the window I remove the hot-bed. Therefore, I complete my mound. I dig the ground around the hotbed, stir the land, and with a rake again hill up the land a little towards the melon plants. I again put some mould on the top of the mound and on the melon plant as far as the seed leaves.

I make a circular mound with depression in the centre where the plant is in such a manner so as to form a basin, in order to contain the quantity of water needed. Afterwards, I put a thickness of

one inch or one and one-half inches of a black substance (like dung) all around the mound, in a manner so as to mask all the surface of the mound. This is done to have all the heat possible penetrate the depth of the mound. In fact, of all colors, black absorbs most heat, and the more a mound will absorb of solar heat the more melon plants will develop; the fruits then will be juicy and delicious. Therefore, the whole plant absorbs an excessive heat which is an advantage over flat layers.

My mounds finished, I put four shingles (about middle size) in each, leaving them a little larger than the branches of the melon, then I put on my hotbed with the frame entirely closed. I open it only to water or to warm the plants. I take off the hotbeds in June only when the heat of the temperature is strong. When the fruits are half grown, I gradually take them away from the leaves, or rather,

if the weather is cloudy, I place them on a large shingle which I sharpen at one end and which I put in the mound; at the other extremity I put a support.

The height of my mounds is eighteen or twenty inches, having a circumference at the base of 100 inches at least, and at the top, a circumference of seventy or seventy-five inches.

VARIETIES AND SEED SELECTION

I have cultivated a great variety of melons with seed coming from Los Angeles, California, but the best ones that I have found are those of Montreal and of Cantaloupe. Select those varieties that are known to give the best results.

We should always select the seed. The best seed is that which is taken from the middle part of the slice of the melon. This is the first one formed, and it reaches always its full development. A melon seed, well cultivated, requires four months to cover the period of vegetation.

A Few Facts About Potatoes

W. J. L. Hamilton, South Salt Springs, British Columbia

ALTHOUGH everybody grows potatoes there are a few interesting facts about them that are not generally known. To obtain an early crop of potatoes, not only should an early variety be chosen, but the tubers should be exposed to the sun under glass until they have turned green, and until the sprouts on them are an inch or more long. The longer these sprouts are, the better, if the sets are carefully handled so that they are not broken off. This sprouting has the effect of developing a number of short joints on the young shoots and, as the young potatoes form at the joints, it stands to reason that the more joints we have underground, the heavier the crop will be. If after planting, the potatoes are earthed up, more young tubers will form, but as these do not develop until the plant has made considerable growth, the ensuing crop though heavier is later than if the plants are not earthed.

POTATO CULTURE IN IRELAND

In Ireland, where the labor is not grudged, I have seen very fine crops of potatoes grown in wet boggy land by the following method:

After being plowed, the land is marked out in strips alternately four feet and two feet wide. Strawy manure is spread on the four-foot strips, and on this manure, the freshly cut potato sets are evenly distributed, at from twelve to eighteen inches apart, according to the variety of potato used.

The soil from the two-foot strips is then shovelled all over the four-foot beds, covering the potatoes to a depth of three to four inches. When the pota-

to tops have grown a few inches above the soil, the bed is given another top-dressing of the soil from the two-foot strips, which are by this time converted into deep trenches.

Good crops are obtained in this way, and a second crop is obtained from the land at the same time by inserting cabbage plants two feet apart along the edge of the trenches at about the level of the manure. These generally also yield a fine crop. By further deepening these trenches can be converted into drains, whereby the land can be easily reclaimed. This hint may be worth noting, although I doubt if the method would become popular in this labor-saving country.

GROWING EARLY POTATOES IN CELLAR

New potatoes in small quantities can be produced early in the year, when they will fetch fancy prices, by the following method:

Fit up a number of wide shelves in a dark cellar and on these place two inches of almost dry soil. Select good-sized tubers and half imbed these in the soil, setting them two and a half to three inches apart. Sprouts will shortly form with small potatoes at their base. The tops of these sprouts should be nipped off with scissors. The small potatoes can be gathered and marketed when about the size of a large walnut. Several crops will be borne before the bed is exhausted. The cellar must be perfectly dark. A very slight sprinkling of water may be given carefully from time to time to the potatoes, though too much does harm.

In fertilizing potatoes, sulphate of

potash and not muriate of potash should be used, as the latter tends to make the potatoes waxy. If nitrogen has to be supplied, nitrate of soda is preferable to ammonia salts. As a rule, however, this is not needed, especially if potatoes are planted on a turned under clover sod, which gives nitrogen equal to about fifteen loads of barnyard manure per acre. As potatoes like a strawy manure, this clover particularly suits them and it has another beneficial effect in that its fermentation produces a slight acid reaction in the soil which has a tendency to check potato scab.

Fertilizer for Lettuce

In what proportions should dried blood and nitrate of soda be used on lettuce?—M.A., Dundas, Ont.

I would suggest the following per 100 square feet of surface; Nitrate of soda, one-half pound; superphosphate, one pound; finely ground bone, one pound; sulphate of potash, one-half pound. To facilitate distribution, this may be mixed with four or five times its volume of dry loam. Work the fertilizer well into the surface soil, say to a depth of two to three inches, by raking.

If preferred, dried blood may be substituted in part for the nitrate of soda in the proposed mixture, say one third dried blood and two thirds nitrate of soda.

When the lettuce is, say, two or three weeks old, a further application of nitrate of soda, at the rate of four ounces per 100 square feet, may be made, if the growth is not vigorous.—Frank T. Shutt, Chemist, Dominion Experimental Farms.

The Canadian Horticulturist

Published by The Horticultural
Publishing Company, Limited

PETERBORO, ONTARIO



The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO
QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD
ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director
A. B. CUTTING, B.S.A., Editor

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription price in Canada and Great Britain, 60 cents a year; two years, \$1.00. For United States and local subscriptions in Peterboro, (not called for at the Post Office) 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than \$1.00.

4. Change of Address.—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising Rates quoted on application. Copy received up to the 15th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

6. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT.

Since the subscription price of The Canadian Horticulturist was reduced from \$1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with Dec., 1909. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Some months, including the sample copies, from 10,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

January, 1909.....	9,456	January, 1910.....	8,925
February, 1909.....	9,310		
March, 1909.....	9,405		
April, 1909.....	9,482		
May, 1909.....	9,172		
June, 1909.....	8,891		
July, 1909.....	8,447		
August, 1909.....	8,570		
September, 1909.....	8,605		
October, 1909.....	8,675		
November, 1909.....	8,750		
December, 1909.....	8,875		

Total for the year .107,638

Average each issue in 1907, 6,627

" " " " 1908, 8,695

" " " " 1909, 8,970

Sworn detailed statements will be mailed upon application.

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THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

CANADIAN APPLE SHOW

From British Columbia comes a suggestion that a National Apple Show be held in Canada annually and that it be instituted in the City of Vancouver in November or December, 1910. The success of the National Apple Shows at Spokane, Wash., is cited and the educational and advertising advantages to Canada that might result from similar shows in this country are pointed out. The idea is an excellent one in theory. Every person in Canada who is interested in our apple industry and its progress would be glad to see a great Canadian National Apple Show held annually in a different province each year. If successfully managed and financed, great advantages would accrue and our pride in things Canadian would be made greater than ever. For these reasons we would like to see such a show held if prospects for its success should warrant action; nevertheless, we fear that the scheme is not feasible.

In the first place we must consider who would be benefitted by the holding of such a show. If the show is to be national in character it must be conducted on a basis that will ensure the support of practically all the apple growing centres of Canada. This would necessitate the show being held at a point that will meet with the approval of the growers in such sections. Eastern growers do not ship any of their apples to British Columbia, therefore, an apple show held in British Columbia would not appeal to them. In the same way, British Columbia growers market little or no fruit in Ontario or other eastern provinces. For this reason they would not be inclined to support a show held anywhere in Ontario or the east. Thus the only point where such a show could be held with any likelihood of gaining general support would be at some place in the prairie provinces. This is a market for which both British Columbia and Ontario fruit growers are competing. As yet neither Quebec nor the Maritime provinces are competing factors there.

To ensure success shows of this kind should be held in fruit centres. Otherwise the attendance and interest manifested is slim. The support such a show would gain in any of the prairie provinces is, therefore, problematical.

Canada's greatest need during the next few years will be the holding of more and better provincial shows. Until shows such as those now held in the various provinces receive greater support than they have in the past it would seem to be too risky a venture to attempt to hold a national show. Such an event, however, will materialize in good time as our fruit industry develops.

SPRAY! SPRAY! SPRAY!

It is necessary no longer to tell farmers and fruit growers that it pays to spray. The spread of injurious insects and fungi has made the practice absolutely essential to the production of fruit of the best quality. Spraying is now placed among the regular operations in orcharding. No up-to-date fruit grower would consider for a moment the possibility of growing fruit without the aid of the spray pump. When money is invested in fruit trees for commercial purposes, money must be spent for spray pumps and mixtures. Many growers who have been slow in adopting the practise have, through their losses, been made to see their folly.

There are very few out-and-out fruit growers who do not spray and those that do not are not profiting by the experience of others—they are producing low-grade fruit when high-grade fruit could be had with but little extra expense.

In the case of farmers who have small orchards of fruit trees "on the side," the practise of spraying is not so universal. Unless they have been shown the value of spraying, by example or by co-operative effort, they consider it laborious and an unnecessary expense. There are thousands of farmers in Canada with established orchards that might have a nice income from the sale of fruit, particularly apples, if they would give the trees more attention in regard to cultivation, fertilizing, pruning and spraying—and no one of these operations is worth while for any length of time without all of the others. These farmers should spray.

The first cost of a spray pump is soon returned to the purchaser in increased returns from the orchard. For small orchards, hand-pumps give excellent results; they are cheap and can be used also in the potato field and elsewhere when needed. For large orchards and for use in a group of small orchards whose owners club together, the power sprayer is the most satisfactory and economical.

Farmers and fruit growers in Ontario have had a special inducement for forming co-operative societies of five or more members for spraying. In 1907, the provincial government gave a bonus of fifty dollars on each power machine purchased co-operatively. In 1908 and 1909, the money was distributed according to the acreage sprayed and the efficiency of the work done, regardless of the type of machine used. Bonuses for such work will not be offered this year. Instead, the government intends to send out competent instructors to give advice in regard to pruning, spraying and other orchard operations. A number of townships or counties will be selected and a man put in each for a considerable time to go from place to place giving information on these points.

There should be a spray pump of some kind on every farm where fruit trees are grown. One season's trial will prove its worth and the owner will wonder why he did without it so long. There are many different kinds of spray mixtures to use. Good ones may be made at home and others equally good may be purchased from manufacturers. Buy a spray pump, find out what mixture to use and spray, spray, spray!

PUBLIC SPRAYING

There is an opportunity in Canada for public sprayers. In many villages, towns and cities, there are fruit trees, bushes and shrubbery, infested with insects and diseases in variety, that should be sprayed. Often the trees are held in high esteem by the owners who seldom detect the pests until the trees are badly infested. Many of these people are eager to have their trees properly sprayed but have neither the facilities for the work nor the time to do it. There is a chance here for remunerative employment for persons who would undertake the work. Furthermore, there is great need for such public spraying in preventing the spread of noxious insects and diseases.

There are three ways in which public spraying can be conducted. Private parties in each municipality can secure the equipment and spray mixtures and perform the operation. By using commercial spray mixtures the equipment could be reduced to a spray pump and accompanying apparatus. Once it is known that the service is available, plenty of work would be

found in most cities and towns to occupy two or three months in spring and the same in fall.

Public spraying could be conducted by local horticultural societies and fruit growers' associations. Spray pumps and materials could be purchased by the societies, men hired to do the work and a charge made to each member at so much per gallon of spray mixture used. This scheme has been tried already by Grimsby, Ont., and other towns and villages. The spraying outfit would soon pay for itself and the societies would have another strong scheme for securing membership.

The departments of agriculture of the various provinces might introduce this system of public spraying. For the past two years the state government of Maryland has been conducting public sprayers in different parts of that state. Twenty-three outfits were operated there last spring and the state intends to increase operations. The success of the work has resulted in a great demand for public sprayers. A recent bulletin issued by the Maryland Agricultural Experiment Station states that such spraying can be conducted by private parties on a reasonably profitable basis. That state "conducts the work upon a basis of cost of operation, and not with any desire to make a profit." The provincial departments of agriculture in Canada might well start the work in this country in a small way and thereby help people who are in need of such assistance. A means of controlling the development of pests in and their spread from town and city breeding places would thus be provided. By showing that there is a demand and by demonstrating that such work can be done profitably the departments would prepare the way for private parties to undertake the work.

PUBLISHERS' DESK

An index to THE CANADIAN HORTICULTURIST for 1909 has been prepared. Copies will be sent only to those subscribers that apply for them. If you keep your copies on file, you will find an index very useful. Write for one right away.

Two or three of our friends have asked by letter recently why we do not establish a nature study column in THE CANADIAN HORTICULTURIST. While nature study has an indirect bearing on the practice of horticulture we do not feel that we can afford the space just yet for a department of this nature. Occasional articles on the economic phases of nature study will be published.

As our readers feel that they cannot do without the monthly visit of this magazine, most subscriptions are renewed promptly. Those that neglect to renew are reminded by mail. In most cases we have no difficulty in securing renewals, but what are we to do with a subscriber who writes as follows: "I would like to renew this subscription, but what's the use when I don't know the difference between a perennial, a biennial, a diurnal or a Chinese pompon, and am too chronically lazy to till the soil for gardening, and too old and rickety to start fresh; so, wot's the use?" Friend, the teachings of THE CANADIAN HORTICULTURIST will make you wise in all things horticultural, its counsellings will baffle the hook worm and its motives will bring you back to youth and start you right; it will put you into harmony with the out-of-doors—that's the use! Send stamps, if most convenient.

A Niagara Man in the Okanagan Valley

"Cerasus," Kelowna, British Columbia

NOT having been in the valley long enough to speak authoritatively about cultural methods, I will tell some of my impressions about a country and climate very different from that in which I was brought up, the Niagara district of Ontario. From Sicamous Junction on the C. P. R. southward to Vernon is sometimes included in the Okanagan Valley. Probably more often it is known as the Spallumcheen Valley. It is a splendid country for agriculture and apples, and is claimed to resemble Ontario in climate more than any other part of British Columbia. From Vernon, it is but a short distance to Okanagan Landing where navigation on the lake begins. From the landing to Penticton at the southern end of the lake, a daily boat service is maintained by the C. P. R. Kelowna, Peachland, Summerland and Penticton are ports on the lake and fruit growing sections of importance.

Vernon is well known for its superb apples and the location of the famous Coldstream Ranch. There are large areas of good fruit lands at Vernon. Some of the more tender fruits do not seem as much at home as on places on the lake, where the water moderates the winter, as Lake Ontario does for the Niagara fruit belt.

From Penticton southward along the Okanagan River, there is some fruit land right to the international boundary. A good country it will be when water is got on to the land and a railway is put through.

Summerland is a progressive little town, in which some C. P. R. men are quite interested. A splendid and rapidly increasing quantity of fruit is shipped from here. Peaches, prunes and apricots are grown with entire success and also at Peachland, the latter a busy little place and notorious for its abundant crops of peaches. Kelowna, the largest place in the valley, excepting Vernon, has 1,200 population, and is growing rapidly. The largest compact area of fruit land in the province lies in the wide flat and benches back of the town.

IRRIGATION REQUIRED

As yet there is not irrigation water for all the land, even if there were settlers. Reservoirs or dams are needed in the mountains to conserve the snow water which comes down in greatest quantity in early June. It will mean more big companies and capital before more than a fraction of this land can be properly irrigated. Bench land that gets absolutely parched in mid-summer seems to grow fruit trees splendidly when water is got on to it.

Last summer was unusually dry, but orchards continued to smile on well-irrigated land. There is a great variety of insects here, but the wise precautions of the provincial government in fumigating incoming stock, and the careful spraying practised in nearly every orchard, has kept the orchards very clean.

KIND OF PACKAGES

Fruit is all sold by weight. The Californian idea of small, neat packages has caught on here and is a great step in advance of eastern methods of packing. Ten-pound cherry boxes, for instance, are more reasonable packages in which to ship that fruit than 10 or 12-quart baskets. Though many sorts are grown which are rather tender in the east, and the fruit generally is beautifully colored, I cannot say that, for juiciness or flavor, the fruit here excels the same sorts grown in the Niagara district.

People taking up land in this valley should make sure that it is suitable for

fruit growing. Real estate men are very fond of selling side-hill farms to those who will buy them. Even if the soil is suitable, it should be remembered that steep land is always difficult to irrigate well. The job of watering an orchard here is no small part of the routine work. The Kelowna district will be a power in the fruit market in a few years as there are thousands of acres of young orchard that will be in bearing soon.

Grapes in Niagara District

At the conference of the American Pomological Society held at St. Catharines, Ont., last September, Mr. Murray Pettit, Winona, Ont., read and discussed the following paper:

"Grape growing in the Niagara district is confined chiefly to a narrow belt along the southern shore of Lake Ontario, 40 miles in length, and from two to three miles in width, and along the Niagara River. From 1861 to 1871 a few small commercial vineyards were planted; in 1881, about 400 acres were under cultivation; in 1891, 2,397 acres; in 1901, 7,888 acres; and at the present time, 1909, 14,504 acres.

"The average yield for Concord and Niagara is over three tons per acre, other kinds about two and one half tons. One-third of the crop is used for wine, the balance in the fresh state. Sixty per cent. of the grapes grown in this section are Concord; 20 per cent. Niagara; 10 per cent. Champion, Worden and Black Rogers; 10 per cent. Red Rogers, Delaware, and other kinds.

"Bright sunshine during the maturing months of August, September, October and a high average temperature, make it an ideal condition for grape growing. Destructive frosts seldom occur before the close of October, giving a long maturing and harvesting season, which begins about the end of August, and lasts until November.

"Insect pests are neither numerous nor particularly destructive. Fungous troubles are chiefly confined to the downy mildew, powdery mildew and black rot, in some sections on moist, sandy soils. Spraying in early spring with lime and sulphur and later with Bordeaux mixture practically controls these troubles.

"In reference to varieties: I have fruited for several years 154 varieties, new and old, which I place in three groups with regard to profit, and in order of ripening.

"The first eight varieties which I have found the most profitable, are Champion, Worden, Lindley (Roger No. 9), Delaware, Niagara, Concord, Agawam, (Roger No. 15) and Catawba. For the Niagara district, Champion and Catawba should be struck out of a general list for profit, except in very early locations and soil.

"The next group in point of profit is: Campbell's Early, Moore's Early, Massasoit (Roger No. 3), Moore's Diamond, Wyoming Red, Brighton, Wilder (Roger No. 4) Herbert (Roger No. 44), Barry (Roger No. 43), and Vergennes.

"Next most profitable are: Moyer, Early Victor, Winchell, Eumelan, Brilliant, Cambridge, Reque (Roger No. 28) and Diana."

THE CANADIAN HORTICULTURIST should be in the hands of every practical farmer and fruit grower. It is worth many times the price of subscription. I am both pleased and benefited by perusing it.—W. G. Clarke, Bear River, N. S.

Tree Planting in Charlottetown, P.E.I.

A. B. Warburton, M.P., Charlottetown

CHARLOTTETOWN is one of the old towns of Canada. It was planned before it was occupied. Spacious squares with wide streets running to the water's edge were plotted out before any buildings were erected. It is one of the best laid out towns in the Dominion. The principal streets are 100 feet in width. Five squares were reserved for the benefit of the citizens. Unfortunately, in the middle of last century, one of them was spoiled by having an unsightly jail with high palisaded fence placed upon it.

On three sides, Charlottetown meets the waters of one of the finest harbors in Canada. There are three tidal rivers emptying into the harbor. The surrounding country is fertile, undulating and beautiful in its varied hues. The red soil affords a pleasing background to the ever changing colors of the landscape. Trees singly or in clumps and groves give the country a park-like appearance.

Charlottetown would seem to be an ideal

now few in number and are rapidly disappearing. It is to be hoped that those who still keep them up will take some wet afternoon, ransack their family pedigrees, and when they find that none of their forbears who came to Prince Edward Island long ago, should have been sent to Van Deman's Land instead, they will remove these hideous structures, so suggestive of by-gone wrong-doing, and by so doing improve the appearances of the city and of their own homes.

In the early spring of 1884, it would have been difficult to find a more unsightly place than Queen Square. The buildings were all right. But the square! Its absolute hideousness could not be described. Brick bats were the most ornamental things to be seen. Next came wisps of grass, looking forlorn, and growing in a spasmodic fashion. They were always dry, but fortunately so far apart that if a lighted match were thrown into one bunch, the conflagration thereby caused was not likely to spread to

appointed "Arbor Day." The children of the schools, and some not of the schools, were asked to take a part and plant and they did so. No section of the citizens were more interested than the children. The sight of some 1200 children, on that day, gathered in Queen Square, to inaugurate "Arbor Day," and to help do away with the noisomeness and unsightliness of that and other squares, as well as streets, will ever be remembered by those who saw it. It was an inspiring sight. Numbers of men also, with their own hands, planted their own trees which are to-day a worthy memorial to their public spirit.

Over 800 trees were planted that first Arbor Day. The people, who are to be found everywhere, skilled in throwing cold water on every undertaking, warned us that the boys would tear up and destroy the young trees. But the boys did nothing of the kind. They looked after their trees and were proud of them. The only damage ever done to the trees was not the work of youngsters. The boys showed that they could be trusted.

Each year since, more or less have been planted, until now Charlottetown has a goodly number. But there is still room. Those planted in 1884 have made a fine growth.

Besides planting trees the beautifying of the unsightly square was taken up. In this, Mr. Arthur Newbury, assistant provincial secretary, was and still is the motor power. The ground was prepared, walks laid out and grass sown. Flower beds were planted and kept up, and now Queen Square, with its trees, its flowers, its fountains and its concerts has become a favorite resort and something of which the citizens are proud and which visitors admire. The brick-bats, the wisps of grass, the dust, the dirt, the old time air of desolation, have gone. The younger generation does not remember them.

Not only in Queen Square, but in the other squares and in most of the streets trees have been planted and have flourished. Grass plots have begun to line the sides of the streets, whilst the streets themselves have been vastly improved; but still, the improvement which most strikes the eye is the one that began with that first "Arbor Day," May 24, 1884. I would suggest to the readers of THE CANADIAN HORTICULTURIST that they visit Charlottetown next summer and see this city and province for themselves. It would do them good.



Queen Square, Provincial Legislative Buildings and Court House, Charlottetown

place for ornamentation. Yet, founded though it was in the third quarter of the 18th century, the last quarter of the 19th saw streets and squares, notably the principal square in which the public buildings stood, that were about as unsightly and bare as well could be imagined.

The early settlers in Charlottetown were not convicts nor were they of the jail bird type. They were of as fine a class of people as the Old Country ever sent forth to occupy her over-sea territories. Yet, somewhere away back, one would almost expect to find an "off streak," because these excellent people insisted on surrounding their places of abode with high board fences, which gave these pleasing residences the appearance of asylums for the insane or of prisons for the criminal classes. This mania prevailed until some 25 years ago, when the more civilized notions of the Victorian age, gaining the upper hand, induced the majority of the owners of these jail-like structures to use the materials of which they were composed for the kindling wood or other useful purposes. A few samples of the jail-yard style of wall still remain, an eyesore in our city, forming a sort of connecting link with the past. However, they are

the next squalid neighbor some feet distant. Cows and horses frequently found their way into the square, proofs of whose presence could always be seen by the admiring tourist. The summer dust, to be appreciated, had to be seen and felt.

A post and rail fence, of portentous ugliness, had been erected around the square, but its builders or designers, being lovers of animal life, had seen fit to allow numerous openings to be left or made, which were a great convenience, as to ingress or egress for the animals owned by citizens who looked upon the square as a kind of bovine or equine recreation ground.

In the spring of 1884, a number of the more public spirited citizens came to the conclusion that the time had arrived when all this should be changed. The assistance of the local press was sought and most freely given. For once the *Patriot* and *Examiner*, organs respectively of the Liberal and Conservative parties united in advocating tree planting. Citizens suddenly realized how unsightly was the appearance of the place.

It is unnecessary to detail the steps taken to effect a change. Suffice it to say that the Queen's Birthday, May 24, 1884, was

Apples at Ten Cents a Barrel

Jas. Burrell, Jr., Yarmouth, N.S.

Yarmouth county has been the dumping ground for the counties of Annapolis, Kings and Hants in the fruit business for many years. Last year was the worst in 10 years. They began as early as Sept. 25 sending in Gravensteins by the carload, marked No. 1 and No. 2. These sold at auction from 10 cents up to \$1.35 a barrel. Some of the No. 1's would have two or three tiers of good apples on top and the rest would not be good No. 3's. Barrels worth 30 cents, freight from 20 cents to 40 cents, and commission and truckage in addition, so there would not be much left for the shipper.

I know of 50 barrels being sold at a private sale to an American for \$17.50. I don't believe he made anything on that as he was kept busy picking them over and sorting them out until he could get a chance to sell at 75 cents a barrel, for most of them. I believe as many as 5,000 barrels were shipped and sold here with a population of only 7,000. Looks hard for the fruit growers of the county! I sold all mine at \$2.00 a barrel, No. 1 and No. 2.

Lime-Sulphur vs. Bordeaux

(Continued from page 1)

lime-sulphur, especially commercial lime-sulphur, can control apple scab in a very satisfactory way, in fact just about as well as Bordeaux.

One point, however, has scarcely been sufficiently well tested yet, viz., whether or not as good results can be secured in wet seasons. The last two summers have been dry and have given the wash a good chance. It is almost certain that a soluble substance like commercial lime-sulphur would wash off more rapidly than Bordeaux. If so, its efficiency would be lessened unless an extra application were made.

PEAR SCAB

On pear scab I have not got definite data from any experiments except my own. In the college orchard at Guelph there are six or seven Flemish Beauty trees near each other in three rows. Two trees in the middle row were chosen. The fruit and leaves of these were both very scabby last year. They were sprayed this summer at the proper dates mentioned above with Vanco lime-sulphur. The first application was of the strength one to nine, the second one to twenty-five, but as this burned the foliage considerably the other two were each made one to fifty. In September, when picked, the pears were absolutely free from scab as were also the leaves. All the surrounding trees which had received three applications of Bordeaux had considerable scab on both the fruit and leaves. Probably if they had got the first application (the one omitted) they would also have been quite clean. However, the experiment showed clearly that commercial lime-sulphur would control pear scab even on Flemish Beauty trees.

LEAF SPOT

As for leaf spot, Dr. Brooks has been making a close study of the cause and remedy for this disease. He finds that the regular sprayings with either Bordeaux or lime-sulphur will control it quite satisfactorily. This is valuable information because Professor Scott and Dr. Brooks have both demonstrated that the disease which causes most of these small round spots on the leaves is also the cause of the back rot canker, and so a wash that will control it in one form will also control it in any other. The leaf spot seldom does much damage to the leaves but its prevalence will help to spread the cankers which are very serious and require special care. Therefore, its control is of importance.

CANKERS

There is not time here to discuss the proper method of treatment for cankers but as

already said the first spraying must be in the spring before the buds burst as the spores spread very early and must not get a chance to germinate. Lime-sulphur of the regular home-boiled type has been well tested this year for the spring application and those who have used it think it vastly superior as a spring treatment to Bordeaux. The summer applications, as said above, should be the same as for apple scab, and either Bordeaux or lime-sulphur, preferably the commercial form, may be used. As the cankers occur on the trunks and branches these will require to be very carefully sprayed in districts where cankers abound. Badly infested orchards treated in this way this year (1909) show no new infections and a great improvement in the health of the trees.

BALDWIN SPOT

Tests made by Brooks showed that Baldwin spot could also be controlled by these forms of lime-sulphur or by Bordeaux if applied at the proper dates mentioned.

The Use of Bordeaux Mixture

Some important things about the use of Bordeaux mixture have been determined through experiments conducted by the Illinois Agricultural Experiment Station and recorded in bulletin No. 135. A few of them are:

1. Injury to foliage of apple trees following application of Bordeaux mixture is of common occurrence. Much of the injury reported or observed is preventable. The principal sources of injury as determined by observation are:— (1) Use of impure or improper materials. (2) Carelessness in making the mixtures. (3) Improper and ineffective application.

The first two of these sources of difficulty can be entirely eliminated and the third greatly mitigated by reasonable attention and supervision. Formulas must be respected and small details of practice must receive attention in order to attain best results. But when all precautions have been taken injury sometimes results. These non-preventable injuries are associated with unfortunate weather conditions and particularly with the action of rain and dew.

2. The adhesiveness of Bordeaux mixture depends very much upon the manner of making and upon the character of the lime used. Variation in the proportions of copper sulphate and lime beyond certain well-defined limits decreases adhesiveness. With lime of good quality a close approximation of equal parts of copper sulphate and lime gives greatest adhesiveness. There is decided advantage in the maintenance of an excess of lime upon the foliage, but this must be

accomplished by subsequent applications and not by increasing the amount in the original mixture.

3. No definite experiments regarding the accumulation of copper in the soil under sprayed trees have been conducted, but from results reported of experiments of others it does not appear that there is danger from this source. There is no evidence at hand that in any way associates browning or yellowing of foliage with copper in the soil.

4. The two classes of leaf injury considered are, "Brown-spotting" and "yellowing." Brown-spotting is the more common injury. Yellowing, when it appears in epidemic form is the more serious of the two because affected leaves are entirely destroyed. Not all brown-spotting is due to spraying. Other causes are, frosts, winds accompanying cold spring storms, fungi and insects. Leaf injuries are most common and most serious in neglected orchards.

5. The ideal spray compound that is perfectly effective and at the same time perfectly harmless on all occasions and under all conditions has not yet been discovered. Bordeaux mixture most nearly approximates the ideal, but its harmlessness can not be absolutely depended upon.

6. Injuries to foliage do sometimes follow applications of Bordeaux mixture and appear to be unavoidable. There are differences of opinion as to the exact manner in which injuries are inflicted.

7. The value of Bordeaux mixture as a fungicide depends upon the contained copper. The action is preventive and not curative. It follows that early application with the one aim of defence gives infinitely better results than later application intended to check ravages already begun.

8. The causes of yellowing of leaves of apple trees are obscure and not well understood. From observations extending over five seasons it seems certain that there are several causes which may operate singly, or together. Recurrent epidemics of yellowing appear to have no direct relation to wet or dry periods, or to other weather conditions. The experiments made do not establish any direct and positive connection between spraying with well-made Bordeaux mixture and yellowing of leaves, but do show that improperly made mixtures may cause yellowing and that yellowing results from use of simple solutions of copper sulphate.

9. Healthy bark of apple trees is impermeable to Bordeaux mixture and solutions of copper sulphate. Copper sulphate solutions are absorbed through wounds and promptly kill the leaves which then become brown. Numerous experiments in which copper sulphate and solutions were injected through roots and through holes bored in trunks of

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trees, uniformly resulted in browning of leaves. The copper penetrates to the leaves as was determined by analysis.

10. The importance of rain and dew as agents causing brown-spotting of foliage following applications of Bordeaux mixture is well attested by the uniform results obtained from the experiments with covered and uncovered trees. Two trees were sprayed heavily; one was left exposed, the other was protected from all rain and dew. This was repeated during three seasons. In each year the foliage of the exposed tree was more or less injured by brown spots, while the tree protected from rain remained free from injury. Several other experiments in which trees exposed to rain were brought into contrast with trees protected from rain gave, in all cases, the same results, namely, some degree of injury to foliage exposed to rain and absolute freedom from injury to the foliage of trees protected from rain.

11. Milk of lime does not cause brown spots even when applied in large quantity, but burning quickly follows applications of copper sulphate solutions even when the solutions are very dilute. It is therefore concluded that copper in solution is the active agent responsible for the burning of foliage.

12. Bordeaux mixture has a decided influence upon the color of leaves. Under a coating of Bordeaux mixture leaves assume a very dark green color that is retained even after the coating is mostly washed away. Leaves coated with lime only become in some degree darker in color than untreated leaves, but the shade is not so deep as is assumed under a coating of Bordeaux mixture.

I enjoy the attractive pages of THE CANADIAN HORTICULTURIST. Its suggestions are always practical.—J. A. Wallace, Brant, Co., Ont.

Self-boiled Lime-Sulphur

In the October issue of THE CANADIAN HORTICULTURIST there appeared on page 224 a brief report of a paper on "Sulphur Sprays," that was read at the conference of the American Pomological Society held at St. Catharines, Ont., last September. In the paper, which was prepared by Mr. W. M. Scott of the Bureau of Plant Industry, Washington, D.C., mention was made of some experiments conducted in the Hale orchards of Georgia. The mixture used in the experiments was composed of 8 lbs. sulphur (flour or flowers) and 8 lbs. fresh stone lime to 50 gals. of water. In mild cases of seal and brown rot, a weaker mixture (6 lbs. of each) may be used. In order to obtain a good concentration of heat from the lime, the mixture should be prepared when practicable in large quantities, say enough for 200 gals. The formula would then be 32 lbs. of lime and 32 lbs. of sulphur to be cooked with a small quantity of water (8 or 10 gals) and then diluted to 200 gals. NOTE.—50 gallons wine measure, here referred to, equal 40 gallons Imperial.—Editor.

Place the lime in a barrel and pour on enough water to almost cover it. When the slaking starts, add the sulphur, which should first be run through a sieve to break up the lumps. The slaking of the lime will boil the mixture for several minutes, dissolving a small portion of the sulphur. More water may be needed to keep it wet but care should be taken not to add enough to stop boiling before the lime is thoroughly slaked. Considerable stirring is required, to keep the water distributed through the mass so as to avoid drying and burning on the bottom.

As soon as the lime is thoroughly slaked, or not more than five minutes thereafter,

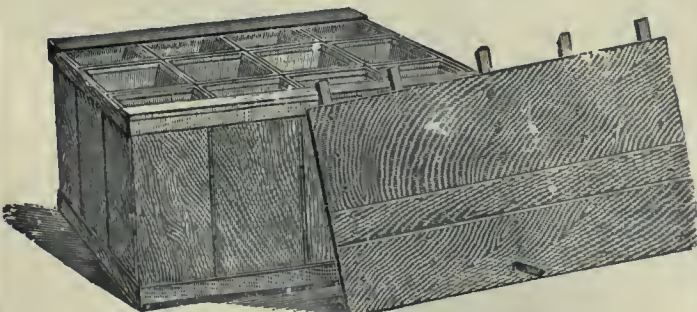
enough water should be poured on to cool the mixture and prevent further cooking. It is then ready to be strained into the spray tank, diluted and applied. If the mixture is not cooled within a few minutes after the lime has finished slaking, the heat continues the cooking so that within 20 or 30 minutes a large percentage of the sulphur may go into solution in the form of calcium sulphide, which is injurious to the foliage. The object is to make a mechanical mixture of the lime and the sulphur, dissolving only a small portion of the latter. It should be strained so as to take out the coarse particles of lime, but the sulphur should be carefully worked through the strainer.

Tomato Leaves as Insecticide.—Many observers have noted that the leaves of Tomatoes are obnoxious to certain insects. Applying this idea, Mr. Boncher, a French grower, has experimented with decoctions of tomato leaves, and finds, according to the *Revue Horticole*, that the extract is sufficiently poisonous to destroy green fly. By syringing peach trees infested with these insects he succeeded in completely ridding his trees of the pest. The value of the observation lies, of course, in the cheapness of the specific, its cost (to growers of tomatoes, at all events) being far less than that of many other remedies.

Readers of THE CANADIAN HORTICULTURIST wishing to secure some of the fine colored calendars and posters being sent out by the International Harvester Co., of Chicago, or copies of their interesting book, "Glimpses of Thriftland," can secure same by writing to the nearest agency of the above company and mentioning this paper. See elsewhere in this issue for a list of Canadian agencies.

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Iron Arsenate as Insecticide

Experiments with iron arsenate as an insecticide have been conducted for several years in France by Messrs. V. Vermorel and E. Dantony. A report of their work is given in the "Experiment Station Record" of the United States Department of Agriculture, Washington, D. C., as follows:

"On the basis of several years' experiments the authors conclude that the action of iron arsenate, as an insecticide, is equal and sometimes superior to that of lead arsenate. It is easily prepared for use and its adhesive power is greater than that of similar products.

"Among the advantages that this insecticide has over lead arsenate are its characteristic color which prevents a mistaken use and the presence of iron in place of lead, the former having a beneficial effect upon the foliage. The most important advantage, however, is the cheapness of the product due to the cheapness of sulphate of iron as compared with acetate of lead."

At the Woburn (England) Experimental Fruit Farm, investigations have shown that the clear lime water made by slaking three pounds of quicklime in about one hundred gallons of water, and then adding eighty-six gallons of this clear solution to fourteen gallons of water in which six pounds, six and one-half-ounces of copper sulphate have been dissolved, will yield one hundred gallons of Bordeaux mixture superior to and cheaper than that made according to the commonly accepted formula. As our ordinary commercial forms of quicklime vary exceedingly in its essential constituent, viz., calcium oxide, the potassium ferro-cyanide test becomes essential if anyone is disposed to give this formula a trial.—Exchange.

Niagara Growers Meet

Harmony prevailed as usual at the annual gathering of the Niagara Peninsula Fruit Growers' Association held at St. Catharines, Ont., on Jan. 13. President Bunting was in the chair, with Secretary Carl Fisher presenting the reports of the year. Officers were elected for the various districts and a series of meetings were arranged for the coming spring.

It was moved by Major Roberts and W. H. Hough that in the opinion of the association it is necessary that an adequate census of the amount of acreages of fruit under growth and the ages of trees be taken, and that both Provincial and Dominion departments be requested to assist.

Mr. P. W. Hodgetts of the provincial department stated that a census taker had been placed in the district to get information and that a report would be issued early. Major Roberts thought that the number of young, non-bearing trees should also be taken into consideration. It was very essential in the mind of the president that such a census as Major Roberts had outlined should be taken. Unless this was done, the growers would not be able to get proper information relative to the setting out of the different varieties of trees.

A resolution was adopted setting forth that "in view of the rapidly increasing output of tender fruits from the Niagara peninsula, and from the fact that under the present methods and conditions, the distribution of these fruits is not satisfactorily nor systematically conducted, a situation which results in dissatisfaction to the consumer and often in loss and disaster to the shipper, we would urge that a committee of prominent growers, selected from the members of this association, located at different shipping points in the district, be

appointed to take the matter under consideration, to secure data, and, if possible, to formulate a plan whereby the present unsatisfactory conditions may be if not wholly eliminated, at least to a large degree remedied."

Another resolution was passed as follows: "In view of the amalgamation and merging of the various canning factories of the country into one or more large holding companies, it is in the interests of the fruit and vegetable growers that a committee of growers be appointed by this association, who shall have authority and whose duty shall be to treat with these companies with the object of arriving at fair and equitable uniform prices for the various fruits and vegetables produced in this district, and used by the canning factories in their business."

The special spraying committee reported that after experimenting they had found that curl leaf on peach trees can be prevented if sprayed with lime and sulphur previous to the time the buds begin to grow. If the leaves start and curl while the leaf season is on the pest cannot well be checked. The committee experimented in one orchard by spraying all but five trees in the manner advised. In every case, save those of the five trees, the crop averaged ten baskets. The other five lost all their foliage and fruit.—J. A. S.

All persons who are interested in improving their homes should write to Brown Bros., Nurserymen, Limited, Brown's Nurseries, Ont., for a copy of their booklet entitled, "Beautiful Landscapes Quickly Produced." This little work contains much valuable information on landscape gardening.

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What Is a Crab Apple?

In the November issue of THE CANADIAN HORTICULTURIST editorial reference was made to the need for definitions to distinguish between apples and crab apples. Our pomologists are asked to contribute their views. Expressions of opinion on this subject will be interesting and may aid in determining the real distinction, if there is any, between these types. Mr. E. D. Smith, Winona, Ont., proprietor of Helderleigh Nurseries, and president of the Ontario Fruit Growers' Association, gives his opinion in a letter recently received by THE CANADIAN HORTICULTURIST, as follows:

"My idea of a crab apple is simply an apple that is of an extremely acid character, of too acid a character to be edible out of hand for the average person; that is, too acid to be eaten by the average man with pleasure. I do not know what other distinction there is between a crab apple and an apple."

R. Brodie, Notre Dame de Grace, Que., writes: "A crab apple is understood to be the hardest species of the apple family. Most of the improved varieties have sprung from the old Siberian crab, a small, highly colored apple with a long stem, very astringent, the eating of which uncooked, makes people very 'crabbed.' Large varieties like Whitney, Gibb and Isham Sweet should be claimed as apples. In the old overloaded trees of the Wealthy, a hybrid between the crab and the Duchess, one would think that the fruit had reverted back to the crab. It shows the crab parentage with small sized, long stem. It is only by severe pruning, cutting back, manuring and thinning that you can get any size on old Wealthy apple trees."

Mr. W. J. L. Hamilton, South Salt Spring, B.C.: "The term 'crab apple' is the old English name for the wild apple

of that country, *Pyrus Malus*, the parent of our garden apples. Hence it has, in a wider sense, been applied to all wild varieties of apple, such as *Pyrus baccata*, and *Pyrus prunifolia* of Siberia, *Pyrus coronaria* of our continent, and the allied *Pyrus augustifolia* of the west. The crabs of our orchards are cultivated and improved varieties of the Siberian class, *P. baccata* and *P. prunifolia*.

"I well remember when the original 'Siberian crab' was grown in our orchards in England as the sole representative of its class, where it was much valued for the excellent jelly made from it, superior, I believe to that made from the Hyslop or improved Siberian crab of the present day.

"Strictly speaking, I should imagine that the direct descendants of these two Siberian varieties would be the true crabs, but as Professor Baily hints, and as your article clearly points out, the many crosses with *P. Malus* and with possibly other varieties, has made it almost impossible to draw a strict line of demarcation between 'crab' and 'apple.'"

"Crabs are useful only in cooked form; so, it is perhaps logical to look to the cook for the modern definition. From her definition I understand a crab should be of conveniently small size, of a bright, attractive color, and of pronounced crab flavor. Crab flavor means that it should be aromatic, tart, and astringent to a certain degree, but the flavor is hard to define and is best understood by tasting the fruit. It is distinct from that of the apple and is directly inherited from its wild parent."

I appreciate THE CANADIAN HORTICULTURIST very much and do not think I could get along without it. It improves with every issue.—Thos. Bradley, M.D., Bruce Co.

Book Review

"Popular Fruit Growing," by Samuel B. Green, Professor of Horticulture in the University of Minnesota.—A thoroughly practical work treating on the factors of successful fruit growing, orchard protection, insects injurious to fruits, diseases injurious to fruits, spraying and apraying apparatus, harvesting and marketing principles of plant growth, propagation of fruit plants, pome fruits, stone fruits, grapes, small fruits, nuts, etc. Profusely illustrated. Revised Sept., 1909, contains 300 pages, 5½ x 7 inches. Webb Publishing Co., St. Paul, Minn.

This book is the result of the development of the teaching of fruit growing in the University of Minnesota and comprises a careful compilation of lectures on fruit growing given to the students, which have been revised and considerably extended. It should be in the hands of every person interested in fruit growing, is an indispensable guide for the class room and no library is complete without a copy on its shelves. The subjects are well arranged and minutely described, making it easy, therefore, for anybody to understand the matter portrayed, identify difficulties, find the remedies and apply them. It is so carefully indexed that the reader can immediately locate the requisite knowledge by a glance at the list of chapter headings. This volume is handsomely printed on fine paper from large, clear type and is profusely illustrated, containing many special drawings to more clearly define the author's descriptions.

Copies of this book will be sent to any address in Canada, postpaid, on receipt of the price, \$1.00. Order at once. Address THE CANADIAN HORTICULTURIST, Peterboro, Ont.

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Peach Orcharding in Southwestern Ontario*

J. L. Hilborn, Leamington

WITH such subjects as this, it is the present condition that is of chief interest. I will allude to the past, therefore, only enough to say that in Essex county the fruit buds of the peach tree usually come through the winter in good condition so we almost always have plenty of good buds to produce a crop.

The peach orchards in that district have been twice annihilated in ten years, by the winter killing of the roots of the trees to such an extent that several thousands of acres of peach trees were entirely destroyed in that way while a good share of the fruit buds and the tops of the trees were apparently uninjured. So far as I can learn this never occurred before, except once some thirty years ago and then the destruction was not nearly so complete. Therefore, it is fair to assume that with the improved methods of culture and the more general use of cover crops, which is being adopted more and more, the chances are that those who are now planting peach orchards have a fair chance of harvesting good crops.

As so many of the growers lost so heavily by the destruction of all their orchards, on the two occasions I have mentioned, most of them entirely ceased planting peaches for several years and gave their attention to the growing of other crops. A few of the more optimistic ones continued planting to some extent, and those have been harvesting fine crops the past two seasons. But the acreage of bearing orchards is still quite

limited in Essex county. There are perhaps only 170 or 180 acres in bearing in what might be called the Leamington district, including the Albuna and Olinda locations, and I know of no large orchards in the county outside of this territory. There are perhaps 80 to 100 acres more just coming into bearing. The greater portion of these orchards are being well cared for in pruning, spraying and cultivation and are in good condition to produce a crop next season.

The San Jose scale is quite bad all through this district but is being fairly well held in check.

There were probably 25,000 more peach trees planted in this vicinity last spring and, so far as I can judge from extensive enquiries, there will likely be as many more planted in the spring of 1910, while numerous others are planning to plant heavily the following season. It will take several years yet, however, to get the acreage of peaches that we had in this vicinity previous to the disastrous freeze of 1899, but the great majority of the trees that were destroyed at that time were not old enough to have produced fruit to any extent.

Scarcely any tree fruits are being planted in this vicinity except the peach. Farther west along the shore some peaches are being planted but to no great extent.

The varieties that are being planted mostly are St. John, Engol, Elberta, Banner, Golden Drop and New Prolific.

While quite a few of the trees being planted are grown locally and some are purchased from nurseries in the Niagara dis-

trict, the greater portion of them are imported from nurserymen in Michigan. The chief reason for this is the fact that, a few years ago quite a large quantity of trees were purchased from nurseries in the Niagara district, which proved so very unsatisfactory that our growers got the idea that our eastern nurserymen thought that anything that looked like a peach tree was good enough to send to Leamington.

During the past two or three years, however, some of my neighbors and myself have been getting some trees from near Fonthill which have been very satisfactory. If they will continue to send us this class of trees they would possibly win this trade back again, if it is not supplied locally, which is quite probable.

In Lambton county, particularly along the Lake Huron shore north of Forest, the people are becoming quite enthusiastic over the growing of peaches. Mr. D. Johnson of Forest, who is well known as a leading fruit grower of western Ontario, has an orchard of 15 acres just coming into good bearing and he intends planting ten acres more next spring. Mr. Johnson informs me that several of his neighbors have peach orchards that are producing heavy crops annually—that there is over 100 acres of peach orchard in that locality, about half of which has been in bearing for several years, the balance just coming into bearing. He states that in all probability there will be about 100 acres more planted next spring with heavy succeeding plantings.

At Arkona, 12 miles inland, they are also growing peaches to a limited extent. Mr. E. D. Morningstar has about 10 acres in bearing also a young orchard, while several others have smaller orchards. However, the crops there are more uncertain

*Extracts from a paper read last November in Toronto at the Convention of the Ontario Fruit Growers' Association.

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than along the lake and it is unlikely that enough will ever be grown there to materially affect the market.

In the county of Kent, particularly along the lake shore there is a tract of land that is well adapted to peach growing. A few are being grown there but they are not planting very extensively as yet.

Peach Trees on Plum Roots

Editor, THE CANADIAN HORTICULTURIST:—You ask for my experience in growing peaches on plum stocks. It is rather limited, but may be of value.

When so many peach trees were killed by root freezing a few winters ago in the vicinity of Leamington, where we had our experimental station, it was suggested at a meeting of the experimental board that we try to get some peach trees budded on plum, knowing that plum roots would be hardier and perhaps might stand the winter better. We tried to get them at several nurseries both in Canada and the United States without success. Finally I volunteered to grow some if the board would furnish me the plum stocks.

Accordingly in the spring of 1907 they sent me 1,000 (500 Americana and 500 Myrobolan) which were carefully planted and budded the same season. Those on the Americana stock made a vigorous growth in the summer of 1908, fully equalling those

grown on peach roots alongside of them. While the buds had taken equally as well on the Myrobolan, they made but a feeble growth and were not more than half the size. The trees, about 300 of each, were delivered at the experimental farm, Jordan Harbor, to be distributed among the different stations last spring. Reports on how they succeed in the future will be given when results are available.

I myself planted a few and had two fine peaches from one the first year of planting. Judging from these results, I should use the Americana stocks if I were going to grow peaches on plum stocks.—A. M. Smith, Port Dalhousie, Ont.

Shipping Peaches to England

Last season experimental shipments of peaches from various sources in Ontario were sent to England. Comments respecting some of them were published in the January issue of THE CANADIAN HORTICULTURIST. These shipments have been referred to also in the reports of the department of trade and commerce, Ottawa. In one of these reports, Mr. W. A. MacKinnon, Canadian Trade Commissioner at Birmingham, refers to a shipment made by the Biggs Fruit and Produce Co. of Burlington, Ont., and gives the following general advice to persons interested in this trade:

"The Package.—See that it is sound, and

the advertisement which it carries conspicuous.

THE FRUIT

"All over-ripe, bruised, cut, or otherwise blemished specimens must be absolutely excluded. If those selected are to remain sound and carry well, they must be handled more gently than eggs, receiving neither jar nor under pressure. Peaches for export should be picked as much as possible with the palm rather than with the fingers, and placed on a layer of cotton wool or excelsior in the picking basket. All details of wrapping and packing should be carried out with the same delicate care. It all adds to the cost, but there is no use saving expense on that side and landing damaged peaches here.

WRAPPING

"Waxed or some paper impervious to moisture is advisable, though the kind of paper used by California shippers, some of which is treated with antiseptics, should be sufficient if decay and other moisture can be absolutely excluded. Outside the paper, a ring of cotton or wood should surround every peach as a buffer between it and others in the same package. In some of the government trial shipments in 1899 a belt of wood wool was folded in tissue paper making a band from one and a half to two and a half inches wide and successfully used. This of course occupies valuable space, but would appear to be necessary.

COLD STORAGE

"The peaches were in excellent condition, the flavor appearing almost uninjured, so that it is to be concluded that they had come through ideal temperature conditions.

"The whole matter may be summed up by stating that scrupulous care in the matters of selection, protection and temperature is required."

At the Colorado National Apple Exposition held at Denver last month, 16 states were represented and, while the exhibits were small in comparison with those from Colorado, the character of the fruit was such as to leave doubt in the minds of the judges where honors really belonged. Georgia sent 15 boxes and Oregon, Washington, Montana, Utah and New Mexico about 30 boxes each. Then there were mixed exhibits also from Maryland, Pennsylvania, Michigan, Iowa, Kansas, Nebraska, Missouri, Idaho and California.

At a meeting of the directors of the Ontario Horticultural Exhibition held in Toronto last month, it was decided to broaden out that show along similar, but more restricted, lines to that of the Spokane and other western shows. The Ontario Fruit Growers' Association has decided to duplicate any grant from a county to put up an exhibit, up to the extent of \$50 each, provided such exhibit contains a certain quantity of fruit in commercial packages. This and similar ideas will be worked out during the summer in order that the Ontario Horticultural Exhibition next fall will be greater than ever in extent and influence.

Last month a number of horticultural societies in Ontario had the pleasure and privilege of hearing some excellent illustrated addresses by Miss Louise Klein Miller, curator of school gardens, Cleveland, Ohio. Much information was given that will help to make our homes, schools and municipalities more beautiful. The places visited by Miss Miller were Windsor, London, Guelph, Galt, Toronto, Ottawa, Smith's Falls, Perth, Brantford and St. Catharines.

New Amberol Records by Slezak



Leo Slezak, the great tenor, now sings for you in the Edison Phonograph the same famous arias from the Grand Operas that the New York audiences pay \$5.00 a seat to hear. Just how great a singer Slezak is, is told in the following remark, quoted from the New York World the morning after a recent appearance of Slezak at the Metropolitan Opera House: "Caruso now has a rival."

Slezak has made ten records for the Edison, comprising the principal tenor songs from the more prominent roles of his repertoire—so that, while the New York opera goer pays \$5.00 a seat to hear Slezak in one opera, with the Edison Phonograph and Amberol Records you get Slezak at his best in his ten best roles, including Otello, Lohengrin, Tannhauser, Rhadames in Aida and Rodolfo in La Boheme.

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The Potato Situation

Wm. B. Leveas, Chisholm, Ont.

The potato, at the present time, is the only cheap article of food in general use which, from the grower's standpoint, is very unsatisfactory. The 1909 crop was certainly a bumper one, and the price today is below that of profitable production; so it seems a very good time to stop and consider what is to be done about it.

Those who watch the market quotations at all closely have noted that potatoes are brought in large quantities from the Maritime Provinces and sold in Ontario markets at higher prices than our own will bring. There must be a reason for this and one well worth finding. I am credibly in-

formed that in the average carload of Ontario's one may find samples of half the types grown, early and late, round and oblong, red and white, smooth and rough, while it is possible in the east to get a whole train-load of potatoes of a uniform standard which certainly are worth more in any market. It would seem advisable under the circumstances to feed all the small over-large and ill-formed potatoes to the stock and only offer for sale such as the market will readily absorb at a price which yields a profit. The abundance of the crop affords growers an opportunity of getting a supply of new seed of splendid quality at a price not often reached.

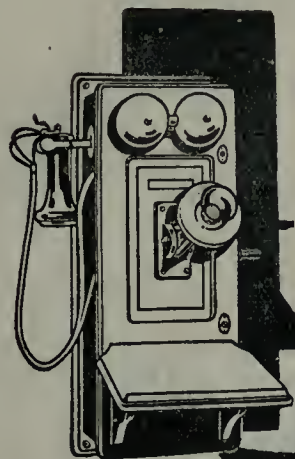
It would be an excellent plan for our farmers' institutes to take an hour in the

discussion of potato-growing with particular reference to the growing of only such varieties as will conform in shape, size and quality to the demands of our larger markets.

A Serious Potato Disease

A bulletin entitled, "A Serious Potato Disease Occurring in Newfoundland," has been issued by the Central Experimental Farm, Ottawa. It was prepared by H. T. Giissov, the botanist. The substance of the bulletin is given in the following summary:

"1. The disease known as 'Potato Canker,' 'Black Scab,' 'Warty Disease,' and 'Cauliflower Disease of Potatoes,' due to



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THE facts about the farm telephone are facts with which every farmer, isolated in the country, should be familiar.

And this book tells you these facts—tells you not only all about the instrument itself—the money it will cost, the dollars it will save, but tells you everything you want to know—need to know—owe it to yourself to know—about farm telephones. Then, it goes further than that.

It tells you in plain, non-legal terms, how you may organize a rural telephone company in your own community. It tells how simple the procedure is, how little—how very little—it costs to get started and how extremely insignificant is the cost of maintenance after you once get going.

After you have read this book you will know exactly what you would have to do if your community wanted to

organize and operate a little telephone company of its own—the precise steps it would be necessary for you to take if you yourself wanted to promote such a company among your own friends and neighbors. You know now without our telling you how, if you were able, to approach your neighbors with every fact—every detail—at your finger ends, you would be able to command their attention, interest and support on such a proposition.

And it won't cost you one single cent to acquire the other information—we stand ready to give it to you for the asking. Remember, too, the information we will give you is authentic. Back of the little book we will send you stands the reputation of the "Northern Electric"—the concern which has manufactured all but 9,000 of the 259,000 telephones which are in use in Canada to-day. The telephone service about which we want to talk to you embodies not one single detail that is not right up to the minute. The telephone service that we offer to the Canadian farmer is based on our newly designed No. 1317 Type Telephone Set—the most modern instrument on the market to-day for use on rural party lines. With it, you can talk and hear just as well as with the instruments used in the largest and best telephone exchanges in the world. We know—for we manufacture all types, from 10,000 line Central Energy Systems down to bridging party lines for rural use.

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the fungus *Chrysophlyctis endobiotica*, Schlib., which caused severe losses amongst European potato crops, has for the first time appeared on this side of the Atlantic, being reported from a locality in Newfoundland.

"2. Growers or consumers of potatoes must guard against the introduction of this disease into the Dominion of Canada by selecting sound potatoes for cultivation and by strictly rejecting any that appear diseased.

"3. As yet, no case of the disease has been recorded from any locality within the Dominion. In the event of the disease appearing, samples of tubers should be submitted without delay to the botanist, Central Experimental Farm, Ottawa for examination and advice.

"4. Specimens of this disease preserved in alcohol will be sent to any agricultural institution or college for the purpose of having type specimens for reference, as soon as ready.

"5. Copies of this bulletin may be had free of charge on application to the Central Experimental Farm, Ottawa.

"6. The present bulletin has been prepared as a warning, in the hope that all

potato growers, merchants, gardeners and private individuals will take immediate steps to report promptly any cases of the disease which may come to their knowledge, and so join in preventing the spread of this serious malady which has unfortunately assumed such dangerous dimensions in Europe."

At the annual meeting of the Hamilton branch of the Ontario Vegetable Growers' Association the following officers were elected for 1910: Pres., R. H. Lewis, Hamilton; vice-pres., M. Button, Hamilton; sec.-treas., Thos. Tregunno, Hamilton. The provincial directors are R. H. Lewis and E. J. Mahony. An excellent programme of meetings has been prepared, copies of which may be had on application to the secretary.

Brown-tail Moth.—The Dominion entomologist at Ottawa has sent out a warning to importers of nursery stock from abroad in reference to the possibility of introducing the brown-tail moth on such stock. Nurserymen are asked to inform the entomolo-

gist if they are importing or already have imported nursery stock this season from abroad, and the place from which the stock is being or has been imported, and the time of its arrival. As it may be necessary to inspect the stock, such information should be sent at once.

Cooper's Fluids.—V1, V2, V2K and V3 fluids are manufactured by a house with a world-wide reputation of 65 years as agricultural chemists. Wm. Cooper & Nephews confidently place their products before the Canadian fruit grower as perfect scientific realizations of ideal spraying compounds. These fluids have been subjected to the most severe tests in this country, the United States, South Africa, Great Britain, France, Tasmania and wherever fruit is grown for profit. In all cases they have gained the approval of the most progressive growers. Readers of THE CANADIAN HORTICULTURIST should obtain a supply this season of these excellent preparations. The highly concentrated form into which they are sold to the public obviates all mixing and any annoying necessity of boiling or preparing. Our readers' attention is drawn to the excellent page of reports for the year 1909 regarding these articles.

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FERTILIZER.

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HAMILTON, CANADA

NOTES FROM THE PROVINCES

Western Horticultural Society

An excellent programme has been prepared for the annual convention of the Western Horticultural Society, to be held at Winnipeg, on Feb. 17 and 18. Among the papers that will be read are the following:

"How New Varieties of Seeds are Produced," by C. J. Turnbull, Winnipeg; "Care of Shrubs and Flowers on the Farm, and the Farmer's Kitchen Garden," J. J. Ring, Crystal City; "Culture of the Sweet Pea," H. J. Edwards, Winnipeg; "Bulbs for House Culture," Thos. Jackson, M.A.C., Winnipeg; "The Cooking Value of Fruits and Vegetables," Miss A. B. Juniper, M.A.C., Winnipeg; "Potato Growing," S. R. Henderson, Kildonan; "Celery Growing," F. W. Hack, St. Vital; "Adaptations in Plants," Prof. C. H. Lee, M.A.C., Winnipeg; "Pruning," D. W. Buchanan, St. Charles; "The Farm Nursery," N. M. Ross, Indian Head; and "Native Birds and Their Habits," J. J. Golden, Deputy Minister of Agriculture, Winnipeg. Addresses will be given also by President John Caldwell, Jas. Murray, Dr. H. M. Speechly, Rev. Dr. Baird, Prof. S. A. Bedford, C. D. Johnston, H. W. Thompson, T. J. Harrison, Wm. G. Scott, and others. Prof. F. W. Brodrick will give a demonstration on judging garden vegetables.

Return railway rates may be obtained for single fare to Winnipeg from any point in Manitoba and Saskatchewan as far west

as Moosejaw, and as far east as Port Arthur, Ont. Every person in the west who is interested in horticulture should attend this convention. The information that will be gained through listening to the addresses and taking part in the discussions will well

repay for time and expense. All are invited to attend. This society is doing good work for the horticulturists of the west, and should be strongly supported. Prof. F. W. Brodrick of the Manitoba Agricultural College is the secretary.

Okanagan Valley, B.C.

At the provincial exhibition, New Westminster, last fall, Kelowna, known as the Orchard City, was again more successful with fruit than any other point in the



This picture shows the **Horse Power Spramotor** spraying vineyard.

If stand pipe hits a post it folds back behind rig and rights itself, each side independently. Has auto. control for height, width and direction of nozzles. 12-gallon air chamber, nozzle protector.

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No **INSECTICIDE** on the market so **Effective** in destroying **Aphis** and other **Sucking** insects.

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Its use guarantees clean, bright fruit like this



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 POPLAR HILL, ONT.

Okanagan valley. Mr. B. McDonald of the Farmers' Exchange packing house took a quantity of fruit to the fair, from various growers. According to the *Courier* he made 251 entries, and won 71 firsts and 197 prizes in all, the following remarkable scores being made: Pears, on plates, 51 exhibits, 48 prizes won; crab apples, on plates, 15 exhibits, 14 prizes; apples, best pack, 3 exhibits, 3 prizes; pears, best pack, 2 exhibits, 2 prizes; apples, 5 boxes each kind, 19 exhibits, 18 prizes; pears, 2 boxes each kind, 5 exhibits, 5 prizes.

In many instances all prizes in a class went to Kelowna exhibits, and this in face of competition with other points in the Okanagan valley and all the provinces. In plate exhibits, first, second and third prizes all came to Kelowna for the following apples: Winter Banana, Cox's Orange, Golden Russet, Duchess, Gravenstein, Jeffries, Wolf River, Hubbardston, Longfield, Ontario, Roxbury Russet, Sutton Beauty, Stark, Seek, McIntosh, Wagener, Jonathan, Newtown Pippin; and the following pears: Flemish Beauty, Louise Bonne de Jersey, Howell, Sheldon, Duchess, Boussock, Clairgeau, Winter Nelis, Beurre Bosc, Idaho, Vicar of Winkfield.

Manitoba

Thousands of dollars are lost by the farmers of Manitoba each year by buying worthless horticultural trees and shrubs from American nurserymen. Last fall the editor of *Farm Crops* travelled through southern Manitoba and for several days he travelled in company with a pair of American salesmen representing a well known Minnesota nurseryman. At each town these salesmen were making their deliveries, and very arrogant they were about it.

In the summer these slick talkers had

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Cabbage grown with the aid of a Complete Fertilizer containing Potash (1909)



This illustration shows some Cabbages grown on the farm of Mr. Jas. Williamson, Calgary, Alta., who finds it profitable to use over 1000 lbs. of a Complete Fertilizer on this crop.

to the up to date Orchardist and Market Gardener.

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Potash must form one of the ingredients of a "Complete Fertilizer" in order to obtain the most profitable returns.

Potash can be obtained of all leading fertilizer dealers in concentrated forms of Sulphate and Muriate of Potash.

Write us on all matters pertaining to this most important question and get copies of our Free publications, including:

- "Fertilizers; their Nature and Use"
- "Fertilizing Orchard and Garden"
- "Potato Crop in Canada"
- "Farmer's Companion"
- "Fertilizing Root Crops and Vegetables, etc., etc."

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BY USING

Originators **Salimene**. (Lime-Sulphur Solution) 1-100. At it fourteen years. An insecticide and fungicide. Better than Bordeaux Mixture.

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PERFECT POTATO PLANTING

Every farmer knows the importance of proper potato planting. Here's a machine that does it perfectly. Has none of the faults common with common planters. Opens the furrow perfectly, drops the seed correctly, covers it uniformly, and best of all never bruises or punctures the seed. Send a postal for our free book.

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Iron Age
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Potato Planter

IRON AGE
No Misses
No Doubles
No Troubles

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driven out among the farmers and by means of glorious pictures of big red apples they got the farmer to sign an order for from one dozen to two dozen trees and shrubs. When delivery was to be made the buyers were notified that they had to be in town on a certain date to take their order away. At Somerset nearly every farmer in the district ordered trees, and we presume it was the same all along the line. One man did not come for his order, which amounted to a dozen mixed lots of trees and shrubs, so that the agents sold it to another farmer for \$12, a reduction from \$15. The agent wanted to get the bundle off his hands. His selling argument was that that particular lot was the most beautiful bundle he had sold all season, and he was letting it go for nothing to make his delivery complete. Nothing was said about varieties, and it is doubtful if the agent himself knew what was in the lot. Anyway, he sold the bundle.

Farmers make a serious mistake when they buy trees of travelling American nurserymen. In the first place American raised trees are grown under different conditions of soil and climate to Manitoba conditions. In the second place, varieties of apples that will grow across the border are not hardy enough for Manitoba.

By buying from home nurserymen the purchaser can buy only those varieties that have a reasonable chance to grow in this climate, as no nurseryman will risk his reputation by supplying tender varieties. As most farmers do not know what are the best varieties, it is in all cases wise to ask and accept the help of the nurserymen in selecting varieties.—*Farm Crops*.

THE CANADIAN HORTICULTURIST is all right,—none better, and very few as good.—Wm. Findlay, Wellington Co., Ont.

PLANT HARDY RASPBERRIES

Quebec Grown Plants

I have a large stock of fine Herbert Raspberry plants; the most vigorous and productive of the Hardy Raspberries. And have also good stocks of the following hardy varieties:

KING, the best early, a great commercial berry.

EATON, a new variety of great promise, the largest of the reds and a tremendous cropper, the Alexander of raspberries.

LOUDON, a slow growing variety but iron clad.

One dozen of any of these, mail postpaid, well packed for one dollar.

I have also a large stock of strawberries of the newest and best varieties.

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AND QUOTATIONS IN LOTS,
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"ELECTRO"

is guaranteed to contain 20% arsenic at an average of 40% water.

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DOES THIS MEAN ANYTHING TO YOU?

"FRIEND" MFG. CO.
GASPORT, N. Y.

Annapolis Valley, N. S.

Eunice Wallis, A. R. H. S.

The fifth annual Seed Fair took place on Jan. 19, at Victoria Hall, Berwick. Special arrangements were made with the D. A. Railway for excursions from the east and the west to Berwick. The money for the prizes was given by the provincial department of agriculture at Halifax. The seed branch of the Dominion department aided by paying the expenses of the judges. The Seed Fair gives farmers an opportunity of buying or disposing of good seed. The competition in fruit is always inspiring and shows our people what our land is capable of producing. Lectures were given during the afternoon and evening on agricultural

topics while the Berwick Brass Band attracted the lay folks.

On Jan. 18, the Berwick Fruit Company held a public meeting in Foresters' Hall, Berwick. Mr. L. D. Robinson spoke on the "Cultivation and Fertilization of the Orchard." Mr. Willis Huntley, a practical and experienced packer, described "Profit and Loss in Fruit Growing as learned from the Packing Table." Mr. S. C. Parker spoke on the "Size of Apples for the Different Grades." Mr. Henry Shaw who recently returned from England related his experience in the English markets.

The apple returns are very disappointing. Speculators have lost heavily, but apples sent through the packing company show better results. In the western part of the valley, the apple warehouses are full, buyers will not buy any more and the farmers have a quantity of fruit left on their hands.

At a meeting of shareholders of the Waterville Fruit Company, it was unanimously agreed that orchardists could no longer afford not to thin their apples, which should be done in July. As an object lesson, barrels thinned and unthinned fruit were exhibited.

Garden, orchard and farm implements and tools of all kinds are listed in the new catalogue of the Bateman Manufacturing Co., Grenloch, N. J. The famous "Iron Age" implements and tools are described and illustrated in a most interesting manner. These implements have an enviable reputation. They are known to all persons that keep in touch with the latest improvements and inventions for making the work of gardening and orcharding more easy. Readers of THE CANADIAN HORTICULTURIST should write to this firm for a copy of this catalogue.

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spread on brown bread makes the
most delicious sandwiches. A tea-
spoonful of OXO to a cup of hot
water makes an appetizing, nour-
ishing drink. Children love OXO.

22

"IDEAL"—The New Mammoth French Asparagus Controlled Absolutely by Ourselves FINEST FLAVOUR—LARGEST SIZE—MOST PRODUCTIVE



A Small Fortune for the Market Gardener

Nothing approaching this magnificent Asparagus has ever been introduced upon the American Continent. Until we had thoroughly tested it we could not believe its high qualities.

The cut is from a photo of one bunch of 20 stalks which weighed two pounds. After photographing, the bunch was cooked and served to four people. There was no waste, the whole stalk eatable and no woody fibre. Quality ahead of anything in the asparagus line grown. We have cut fine, eatable asparagus second year from seed. This bunch on being shown to a leading fruit and green-grocer in Toronto, created great admiration. Such bunches, he says, would retail at \$1.50 each, the beginning of the season.

WE OFFER STRONG 2 AND 3 YEAR ROOTS

Send for Descriptive Circular and Prices

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SOMETHING NEW IN FRUIT TREES

We offer you PEDIGREED TREES. This is a New Departure in the Nursery Business. We Propagate from Selected Bearing Trees. Our Stock is High-class, and we want your trade.

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TREES! TREES!

Fruit and Ornamental Perpetual and Climbing Roses
Beautiful Hardy Flowering Shrubs
Herbert Raspberry Perfection Currant
Descriptive Catalogue and Price List Free

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Northern Grown Trees

Apple, Pear, Plum, Cherry, Peach, Grapes, Small Fruits, Deciduous and Evergreen Ornamentals, Roses, Flowering Shrubs, Climbers, etc. Specialties: Mammoth Dewberry and Wismer's Dessert Apple. Catalogue Free; it tells the whole story.

J. H. WISMER, Nurseryman. Port Elgin, Ontario



"Many a dollar is lost by putting off until to-morrow. Send for catalogue to-day."
—The Philosopher of Metal Town.

No building material like this— "METALLIC"

is superior in every way. It is most economical—is easy and quick to lay or erect, saving expensive labor, and lasts a lifetime without continual repairs. Lightning, rain, wind or snow has no effect on "Metallic"—it is WEATHER, FIRE AND RUSTPROOF, the best material for all buildings.

Look over this list—all made from the finest quality sheet steel

"EASTLAKE" METALLIC SHINGLES. On buildings for 25 years, and still in perfect condition.

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"METALLIC" ROCK FACED SIDING. In brick or stone design for houses.

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EASTLAKE**Steel Shingles**

"MANITOBA" STEEL SIDING. The best for large buildings, elevators, mills, storehouses, etc.

CORRUGATED IRON—GALVANIZED OR PAINTED. For implement sheds or barns, fireproof and durable.

You should read our interesting booklet "EASTLAKE METALLIC SHINGLES" and our new Catalogue No. 70. A post card with your name and address will bring them to you at once.

2023

STEELE BRIGGS' Flower & Vegetable Seeds



Are all tested for Purity and Germination. Send for our beautifully illustrated Catalogue. Free to all. It tells all about the Newest and Best varieties to grow.

Try some of our New
Spencer Hybrid Sweet Peas

ROSES, GRAPE VINES, SHRUBS, &c., &c.

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NEW GIANT-FLOWERED SWEET PEAS

This new type, the largest of all Sweet Peas, is of the most distinct and striking character. The colours embrace the most exquisite shades and they are very free-flowering, with long strong stems. The mammoth size and waved or fluted appearance of the flowers mark these seedlings as the most interesting novelties in Sweet Peas ever developed.

Miriam Beaver. An entirely distinct colour, glowing but soft apricot, tinted, shaded and suffused with lemon. Pkt. 15c.

Marie Corelli. Wings pure rich rosy-carmine, while the standard shows a touch of cherry red. Pkt. 15c.

W. T. Hutchins. Buds show decided buff colour, when expanded a light apricot overlaid with blush pink. Pkt. 15c.

Senator Spencer. A varying combination of deep claret and chocolate, striped and flaked on a light heliotrope ground. Pkt. 15c.

King Edward Spencer. Wings rosy-carmine and standard a deep rich glossy carmine scarlet. Pkt. 10c.

Flora Norton Spencer. Beautiful bright blue, with just a tint of purple. Pkt. 10c.

Aurora Spencer. Ground colour cream white, flaked and mottled with rich orange salmon. Pkt. 15c.

Now ready, our handsome 104-page Catalogue of Seeds, Plants, Bulbs, Poultry Supplies, Garden Implements, &c. Send for it. Free.

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You don't have to mix "Black Knight" Stove Polish.

There is no black watery liquid to stain your hands or dirty the floor.

There is no "hard brick" to scrape—no trouble—no waste—no hard rubbing.

"Black Knight" is a firm paste—ready to use—quickly applied—and shines quick as a wink.

It's as simple and easy to use as shoe polish, and a big stove can be shined with it almost as easily.

Perhaps your dealer does not handle "Black Knight" Stove Polish. If so, send 10c. for a big can, free postpaid.

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Makers of the famous "2 in 1" Shoe Polish.

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Catalogue of Garden
Seeds, with particulars of
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MONTREAL, QUE.

Exhibition to be Held in Italy

The City of Florence, Italy, and the Royal Tuscan Society of Horticulture, have arranged an International Exhibition of Horticulture for 1911, in occasion of the 50th anniversary of the proclamation of the Kingdom of Italy. The programme contains the following classes: Ornamental foliage or flowering plants, either new, or of recent introduction; fruit-bearing plants; vegetables and kitchen-garden plants; seeds; bulbs and tubers; colonial plants; flower decoration; horticultural arts and industries; horticultural literature and instruction; packing and preserving; history of horticulture.

Besides numerous awards of merit (grand medals, and artistic objects), the committee places cash prizes and medals to the value of Lire 25,000 (\$5,000) at the disposition of

the judges. At the same time as the horticultural exhibition, a most important portrait exhibition will take place in the artistic rooms, which have recently been restored in the historical municipal palace (Palazzo Vecchio) besides other shows and amusements.

Aphine.—A new insecticide that is attracting much attention among horticulturists, is Aphine, and it appears to be "making good." Leading authorities on insects and their control as well as the florist trade press of the United States speak highly of its worth and future. Aphine will be welcomed by all growers in Canada that want an effective remedy for the "sucking" insects of the greenhouse, the garden, the park and the orchard. There is a place for a reliable insecticide for these pests. Aphine promises to fill it admirably.

\$532,992,100 !!

That's the Value of Farm Products for Canada 1909— Isn't It Great?

OTTAWA, ONT.—An increase of \$100,000,000 in the value of Canadian crops is shown in the final estimates of the 1909 production just issued by the Dominion Census Department. An area of 30,065,556 acres of field crops has yielded a harvest which computed at local market prices, has a value of \$532,992,100, as compared with \$432,534,000 from 27,505,663 acres last year.

Canada's principle grain crops are wheat, oats and barley. This year they aggregate in area 18,617,000 acres, and in value \$263,710,000, against 16,297,100 acres and \$209,070,000 in 1908. Hay and clover from 8,210,000 acres have a value of \$132,287,700, against 8,210,900 acres and \$121,884,000 in 1908.

Rye, peas, buckwheat, mixed grains and flax, grown on 1,487,311 acres have a value of \$26,707,000, as compared with 1,525,700 acres and \$23,044,000 in 1908.

The total value of wheat harvested in the Northwest provinces is \$121,560,000 and in the rest of the Dominion \$19,760,000, as compared with \$72,424,000 and \$18,804,000 last year.

It is a showing that every citizen is proud of, whether he had a hand in the production or not. The most gratifying story told by these figures is that they represent a gain over the previous year of \$100,000,000.

We are going ahead—going ahead rapidly. That is the best message we gather from this report of our results for 1909.

But, instead of being content with these figures, let us take them only as an indication of what our real possibilities are, and let us use them merely as a mile post in our climb to better things.

Let each of us, for instance, look back over our operations of 1909 to determine whether or not we did our share toward making this showing possible.

We ought to stop and think of what has made the gains of former years possible. We must stop to realize that this gain of \$100,000,000 for 1909 is not only due to more land under cultivation; but has been brought about by better methods of cultivation; by better methods of preparing the soil, sowing the grain and harvesting the crops.

Without the wonderful strides made in the development of farm machines, a \$532,992,100-crop would be entirely out of the question.

And yet there is room for progress—the rules of 1909 farming are not the rules for 1910. New machines mean new advances

and new wealth. Do you keep abreast—are you posted about these things?

About traction plowing—how to plow more acres, in less time, with less expense, for better, bigger returns:

How a good disk harrow will enable you to make better seed beds:

Why it's to your advantage to spread manure the right way—as soon as you get it—instead of spreading it after half its value is gone.

Why it will pay you to use seeding machines that put the seed into the soil so that the best germination is assured and big crops result.

About the money-saving and money-making advantages of having a good, reliable, dependable gasoline engine on your place.

What the right kind of a cream harvester means to you in increased milk and butter profits—and skim-milk calves:

Why a good feed-grinder means fatter stock: How to increase the value of the 1910 hay crop by using the right mower, baler, etc.: How to know all about harvesting machines: How to know the ear marks of a good wagon.

If any of these will help you please secure a copy of our book—"Glimpses of Thriftland." That tells the whole story briefly and in verses that you'll like. Then we have some books that are still more business-like—the I H C Almanac and Encyclopedia, and others. Say which you are most interested in. All are free if you will write nearest branch house of the International Harvester Company of America listed below.

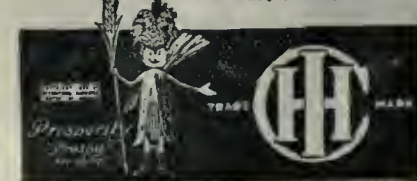
There is an International dealer near you. He will be glad to see you to hand you one of our new 1910 calendars, posters, catalogues or pamphlets on harvesting and haying machines and tools, and tillage implements or any of the machines mentioned above.

CANADIAN BRANCH HOUSES: Brandon, Calgary, Edmonton, Hamilton, London, Montreal, Ottawa, Regina, Saskatoon, St. John, Winnipeg, Yorkton.

Yours for a still bigger showing in 1910

Prosperity—
"Prizes" for share

INTERNATIONAL HARVESTER COMPANY OF AMERICA
(Incorporated)
CHICAGO, U. S. A.



SMALL FRUIT PLANTS

Gooseberries, Josselyn, Red Jacket, Downing, Pearl, Houghton.—Currants Perfection, Ruby, Cherry, White Grape, Lee's Prolific, Champion, Black Naples, Victoria.—Raspberries, Herbert, Cuthbert, Marlboro, Brinckle's Orange, Golden Queen, Strawberry-Raspberry.—Garden Roots, Asparagus, Rhubarb, Perennial Celery.

WM. FLEMING, Nurseryman, Box 54, Owen Sound, Ontario

The Canadian Horticulturist

Vol. XXXIII

MARCH, 1910

No. 3

The Preparation and Use of Concentrated Lime-Sulphur

J. P. Stewart, Experimental Horticulture, State College, Pennsylvania

THE spraying part of the horticultural world is just now in a state of transition. This transition involves the breaking away from Bordeaux mixture and the whole list of copper sprays which have served for more than a quarter of a century as fungicides and the taking up of what may become an equal list of sulphur sprays. It also involves the abandonment of old formulas and processes for making the latter sprays, and the substitution of more definite, economical and less disagreeable methods. Just how complete the transition will be can hardly be predicted now. But this much is certain that, whereas two years ago we might easily have told how best to spray a tree, to-day we must wait for further results before this question can be finally answered.

Among these coming sprays, the clear, concentrated lime-sulphur solution will undoubtedly occupy a leading place. In the commercial form this solution already has a satisfactory insecticidal record of some seven or eight years. In the new home-preparation, it has an excellent record both as an insecticide and fungicide, being first used by Cordley of the Oregon Station in 1907. Realizing the importance of this work, in the latter part of 1908, the writer undertook to determine the essential features of the preparation of storable lime-sulphur solutions and, if possible, render their use available to orchardists.

In brief, the results of this study are as follows: In the making of a storable lime-sulphur at home, we must first get the formula right. This is accomplished by using one pound of good lime, (one containing 90 to 95 per cent. calcium oxid and as little magnesium as possible), two pounds of sulphur, and one gallon or a little more of water, boiling it all down so as to have about one gallon of total product at the close. This 1—2—1 formula can be made up in any quantity, merely noting that the pounds of lime and the gallons of final product are the same in number, while the pounds of sulphur are just twice as many.

The kind of sulphur may be either

flour, flowers, or "powdered commercial" at least 99½ per cent. pure. The last named is probably most desirable, with the flour next, on account of cheapness and the somewhat lessened tendency to form pellets in the process of mixing.

The utensils needed are a cooker, measuring stick, strainer and hydrometer. Their total cost need not exceed \$15. They are described in detail in our Bulletin No. 92*, so that it will suffice here to say that the cooker may be of either iron or wood and use either bottom heat or steam. If steam is used it is preferable for accurate work that it be in closed coils rather than live steam, at least in the latter stages of the process. This is merely because it is desirable that the

uring stick and bring to a boil and stir until the sulphury scum practically disappears. Then add water (preferably, but not necessarily, hot) to the sixty gallon height and boil again to fifty gallons, if storage space is limited. If it is not limited, a little more water may be added the third time, and boiling stopped at about fifty-five gallons. The material should be kept well stirred, especially during the early stages of the process, and any lumps of sulphur or lime should be thoroughly broken up. (If cooker is large enough, the whole amount of water may be added immediately after mixing in the sulphur, thus avoiding the check in boiling though greater care is required to prevent boiling over. A seventy-five gallon cooker is large enough for this).

The time of boiling should be until the sulphur granules are evidently dissolved. This is best determined by dipping and slowly pouring some of the material, under close observation. In many cases we have obtained as complete dissolving of the sulphur in less than forty minutes of actual boiling as was obtained by any time up to two and a half hours. In general a period of forty to sixty minutes of actual boiling should be safe and sufficient to put the sulphur into solution. But the amount of sulfites and sulfates and, therefore, the sediment, are undoubtedly increased by unduly prolonged boiling. Hence the amount of water added in the third addition should be so regulated as to permit the necessary boiling and just reach the desired volume at the close. This gives the least sediment and the regulation can be easily accomplished after a few trials.

The finished product may be immediately poured or strained into a barrel or settling tank. The straining is merely a safeguard to prevent possible clogging due to imperfect materials or failure to break lumps in the sulphur. When properly made the amount of sediment left in the strainer is insignificant. To avoid any considerable loss of materials, it may be washed with part of the water used in making the next lot, simply pouring the water through the strainer into the kettle, and any lumps of sulphur discovered may be broken up and used again.

(Continued on page 68)

Two Reasons

THE CANADIAN HORTICULTURIST should be in the homes of every amateur horticulturist in Canada for two reasons: First, it is a worthy exponent of all that is interesting and desirable in horticulture; and secondly, it has a unique inverse ratio in its mission, being the lowest in price and the highest in quality.—W. M. Robson, Lindsay, Ont.

final volume be under control and be decreasing rather than increasing. Steam jacketed kettles with mechanical agitators are available and they work very nicely indeed. But where storage is not considered and lower densities are permissible, there is no objection to making the material with the use of live steam throughout.

DETAILS OF PREPARATION

In making fifty gallons of concentrate the procedure is as follows: Materials:—50 lbs. best stone lime (not over 10 per cent. impurities), 100 lbs. sulphur (kind stated above), 50-55 gallons of total product, at finish.

Put ten gallons of water in kettle and start fire. Place lime in kettle. After slaking is well started, add the dry sulphur and mix thoroughly, adding enough water to maintain a thin paste, which requires about five gallons. After the slaking and mixing are completed, add water to the height of fifty gallons on the meas-

*Penn. Expt. Sta. Bul. 92, July, 1909. This bulletin contains full practical directions for making, preserving and diluting lime-sulphur solutions, together with a table of uses. It may be obtained for the asking by writing the Experiment Station, State College, Pa.

Pruning Pears

A. W. Peart, Burlington, Ont.

Dwarfs.—When planting cut away the bruised torn ends of the roots, with an under or oblique cut so that the clean wound impacts firmly with the earth. Prune back the top to form a head of three or four main branches, each eight or ten inches in length. Each spring go over them and thin out cross and superfluous limbs and cut back the new growths of the main branches from one-third to one-half, leaving, however, the shorter spurs or laterals on the branches, as they eventually become fruiting wood.

For six or eight years this process goes on, forming the top of the tree in the shape of a wine glass. Some growers prefer the pyramidal form, which is just the opposite. See the diagrams. I think work can be done closer to the trees under the former system.

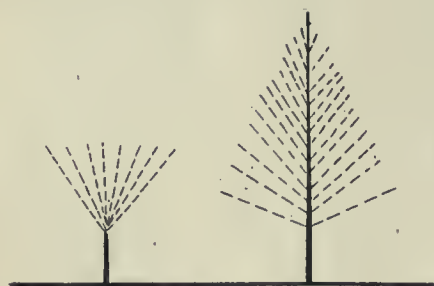


Diagram Showing Outlines of Trees

On the left, wine-glass-shaped; on the right, pyramidal. The former is best shape for dwarfs; the latter, for standards.

Standards.—The head is formed in much the same way as in the dwarfs. Each year afterwards cut back and thin out the branches, leaving, however, the central ones higher than those on the sides, and upon the whole aiming at a somewhat obtuse pyramid. When trees attain the full fruiting habit, or become old, the leading branches in the top should not be allowed to grow out of reach, but kept cut back.

In the average dwarf the branches project from the trunk six inches to a foot from the ground, and in a standard from two and a half to three feet.

Do not be afraid to prune thoroughly. That is one of Nature's laws in getting results.

Raspberry Varieties

Charles F. Sprott, Burnaby Lake, B. C.

When selecting varieties of raspberries to plant the grower must consider climate and location. I would strongly recommend anyone to visit existing plantations and plant such varieties as are in that locality making money for the owners. Later on, if one sees fit and with experience gained, some of the new or untried varieties can be tested.

Personally I favor for this district of British Columbia, the Red Antwerp. It far exceeds in productiveness, thriftiness

and good shipping qualities any other variety I have tried. Other good varieties are the Loudon, Cuthbert, Marlboro and Golden Queen, the latter a yellow variety.

Kind of Apple Stock to Plant

In a special orchard and garden number of *Farm and Dairy* that appeared this month, there is an article on the above subject by Mr. T. B. Revett, Department of Agriculture, Toronto, in which the writer advocates the planting of well-grown two-year-old trees, instead of trees older and larger. His reasons are given as follows:

"1. The space allotted to the trees in the nursery row is just the same from the time they are first planted until they are dug for market. After two years, the tree has fully utilized this space and has reached a state of development which lends itself most advantageously to transplanting.

"2. After two years, the roots of trees in the nursery row take a greater hold on the soil, developing deeper roots, and in the process of digging a greater percentage of the finer roots are destroyed and, such being the case, such trees are not as desirous as younger stock.

"3. The system of pruning in the nursery does not enable the nurseryman to give each tree the individual attention which is required for the formation of a proper head. The sooner the comprehensive and intelligent farmer or fruit grower buys his trees the better able he will be to form a desirable head, which is the most important factor outside of the question of vitality of stock. Every year there are thousands of full bearing trees in Ontario which break down and split owing to the improper branching of the head.

"4. A two-year-old tree has not to be pruned very much and offers every facility to the grower for the formation of an ideal head, allows him to adopt either the low-headed or high-headed system, and offers a greater selection of branches, which is very important in settling the relative position of one branch to another."

The article is concluded by Mr. Revett with the following advice: "Buy young stock which has not already been pruned to any extent. Formulate some definite type of tree which you prefer and know to be desirable. Use your intelligence in pruning and you will be able to secure a proper shaped tree in two years. Do not neglect a tree in the younger stages as all errors are more easily combatted and remedied then than when the tree is older. Keep the heads down, and don't tolerate crotches."

The currant will endure much neglect, but it will respond quickly to liberal treatment.

Grafting Fruit Trees

G. N. Gordoo McKeen, Milford, N. S.

In getting ready for the spring grafting, the first step to take is to consider the markets we expect our grafted fruit to go to. If we are preparing to ship our fruits to the Old Country, we should get an apple report from there and see what varieties lead in price and, if those varieties will do well in our locality, get them. If, on the other hand, we prefer a soft variety for the local market, get the kind most sought after in that market.

Having decided on the varieties, while the trees are in a dormant state, cut the scions, only cutting the growth of last year. After cutting, label them and roll in damp moss or bury in sand in the cellar and have them ready.

At any leisure time you can get the material and prepare your grafting wax. The following is as good as any: One pound of tallow, three pounds of beeswax, four pounds of resin. Melt the resin, and then add the others, and when ready to use warm and apply with a small brush.

When spring opens and the green is showing in the ends of the twigs, is a very good time to begin operations. Take a keen-edged knife and a fine-toothed saw, also an iron or hardwood wedge (a narrow one). Cut off the limb, and see that it is a healthy one, and insert the wedge. I plan to have a number of grafts cut in advance and in cutting them leave two buds beside the one that is to go into the cleft as I find the root of the bud a valuable aid to growth. Make the graft wedge-shaped, leaving the outside slightly thicker so that the edges to unite will be the firmest. Then, having put in two (if the limb is large enough) carefully withdraw the wedge. After having done a dozen or more limbs, take your brush and apply the warm mixture. See that every part even the top of the graft is covered and in two or three years, if your operations have been successful you should find some fruit.

Decide now what trees in your orchard grow undesirable fruit and determine to graft them over with some suitable variety. If you want a particular kind you have not got, secure some scions from someone who has.—J. A. Moore, Hazelbrook, P. E. I.

The ideal apple tree in the interior of British Columbia is trained with a central stem or leader, no limb emerging from the stem within several inches of another, and any limb well separated from any other above or below it. The lowest branch is brought from the stem ten or twenty inches from the ground. A stronger tree can hardly be imagined. Even as doctors differ, so some can be found who prefer the more open headed vase-shaped style.

Lime-Sulphur vs. Bordeaux for Summer Spraying

L. Caesar, Ontario Agricultural College, Guelph

IN the February issue of THE CANADIAN HORTICULTURIST appeared a partial report of an address on "Lime-sulphur vs. Bordeaux for Summer Spraying of Apples and Pears," that was giv-



Using the Knapsack Spray Pump

Red Cheeked Pippin (Monmouth) apple tree, four years planted, in the Fleming orchard, Victoria, B. C.

en at the last convention of the Ontario Fruit Growers' Association. Further information on this subject is published herewith:

ARSENICALS WITH LIME-SULPHUR.

We have now seen that there is very little or no doubt that lime-sulphur, either of the commercial or of the self-boiled type (hot water being used in making the latter), but preferably commercial, will control the ordinary diseases of the orchard almost as well as Bordeaux, the differences being very slight, if any. But there are still several very important points to take into consideration and the first of these is, whether we can use an arsenical with the lime-sulphur, to kill biting insects, such as the codling worm. If not, there are very few fruit growers who will have time to make the extra applications necessary.

With Bordeaux we can use arsenate of lead or Paris green or arsenite of lime, and not fear that any evil effects will result from the combination. With the self-boiled lime-sulphur, where there is a great abundance of lime, there is no doubt that any of the above poisons may be used with safety. I have myself used all three and seen not the slightest sign of injury, although I purposely drenched the foliage and used the poisons stronger than required. With the commercial lime-sulphur arsenate of lead has been tested many times and very little injury has, in most cases, followed, so that this poison may be used with it if desired.

Paris green, on the other hand, has caused considerable burning in a number of cases, although not in all, and its use, therefore, cannot be recommended. Arsenite of lime is the safest and cheapest of all the forms and can safely be used if made according to the following improved method advocated by Prof. J. P. Stewart of Pennsylvania:

ARSENITE OF LIME.

To make arsenite of lime use: White arsenic, two pounds; sal soda crystals, two pounds; water, one to one and a half gallons. Add the white arsenic and sal soda to the water and boil with frequent stirring until all the arsenic is dissolved. This usually requires about fifteen minutes. Then add three or four pounds of good fresh lime and boil a few minutes, letting the lime slake in the boiling liquid. After this remove the vessel from the fire and add enough water to bring the total up to two gallons. Each quart of this mixture, if thoroughly stirred, will then contain one-fourth pound of the white arsenic, or one-eighth of the original two pounds. This amount is ample for forty gallons spray for codling moth and other biting insects; in fact, where drenching sprays are used it would be better to use a little less than one quart. As much of this arsenite of lime as is likely to be required for the summer's work may be made up at one time and stored away. Care must, of course, be taken to label the barrel "Poison," and to see that the white arsenic itself is not left where it may be mistaken for some other substance. Serious accidents have occurred from carelessness of this kind. The barrel should be kept tightly covered lest the stored liquid evaporate and thus render it impossible to determine the proper

strength to use. Always stir thoroughly before measuring out the quantity desired.

Our chemists tell us that the commercial lime-sulphur when combined with arsenate of lead breaks the latter up and forms new compounds with it, one of which is arsenite of lime. If this be so, it is a strong argument in favor of using the arsenite of lime in the first place and saving the difference in cost between it and arsenate of lead. Its value as a poison is nearly as great as that of arsenate of lead.

(Continued on page 70)

Low-Headed Peach Trees

At the last convention of the Ontario Fruit Growers' Association, Mr. Wm. Armstrong of Queenston, Ont., gave the following reasons why a low-headed peach tree is best:

1. It will increase the annual cash profit on account of a larger percentage of first-class fruit.
2. It will add at least five years to its life.
3. There will be minimum damage on account of broken limbs caused by wind, snow and heavy crops.
4. The fruit can be picked from the ground, thus saving the cost of ladders and labor.
5. The damage caused by fallen fruit will be light.
6. The expenses for spraying material and labor will be reduced about one-third.

"In order to have this kind of tree," said Mr. Armstrong, "the peach grower must insist on getting his baby trees from the nursery rows, not the slim five to six feet kind, but short, stocky ones of three to four feet."



A Power Spraying Outfit in Use in an Ontario Orchard

Orchard of E. Leonard and Sons, Cobourg. The machine is an "Auto-Spray," manufactured by The E. C. Brown Company, Rochester, N. Y.

The Principles of Plant Breeding*

Prof. Wm. Lochhead, Macdonald College

HYBRIDIZATION involves a knowledge of the parts of the flower and of their particular functions. It is based on the fact of the sexuality of plants. When ripe pollen from the stamens of a flower belonging to one variety or species is placed on the mature stigmas of a flower belonging to another variety, the pollen grains send down slender tubes through the styles into the ovary, where they enter the ovules and come into contact with the egg-cells. A male germ cell then passes out of the tube and fuses with the nucleus of the egg-cell. This process is known as *fertilization* of the egg-cell by the male germ cell. The fertilized egg-cell soon divides into many cells and becomes an embryo. The plant that develops from this embryo is a *hybrid*, and the process of formation is called *hybridization*.

The principles of hybridization of plants were unknown before the eighteenth century. The development of our knowledge of hybridization is largely due to Kolreuter (1760), Knight (18—) and Darwin. Later additions to our knowledge were contributed by Gaertner, Naudin, Focke, Vilmorin, Mendel and others. To Darwin we owe the phrase: "Nature abhors perpetual self-fertilization," which does not hold true in the case of many vigorous plants such as tobacco, wheat and barley. Dr. East says Darwin's phrase should probably be changed to read: "Nature resists any sudden change in long established conditions."

It is well known that many plants have special adaptations in their flowers, whereby self-fertilization is prevented; that the highly colored flowers are usually cross-fertilized by insects; that the more inconspicuous flowers are cross-pollinated by wind, etc., etc. Darwin proved by numerous experiments that the products of crosses were usually more vigorous than the parents of the hybrid. It has also been observed that "in general the closer the botanical relations of two plants, the more easily they will cross. Crosses between varieties are generally very easy to make; those between Linnaean species have been made in quite a number of instances, while crosses between genera and families are rare." Moreover, it has been observed that hybrids arising from parents not closely related are usually much more likely to be sterile than are those from parents nearly related.

While a host of facts regarding hy-

bridization had been accumulated, no general principle had been established until Mendel published a report in 1865. The experiments embodied in the report were made between 1855 and 1865, and were published in the transactions of an obscure society in Brunn, Austria. This publication lay unnoticed until 1900.

If one turns to the works on plant breeding published before 1900 he will realize how vague at that time were our notions of the laws regarding hybrids. No person seemed to be able to predict with any degree of certainty the result of crossing varieties of plants. In fact, contradictory results are often reported by different plant breeders. "The facts were wonderful enough, but they showed no signs of falling into an orderly arrangement." Mendel's results were formulated in two laws:

1. *The Law of Dominance*, which may be expressed thus: "If two contrasted characters which have previously bred true are crossed, one only, the dominant character, appears in the hybrid." (East); and

2. *The Law of Inheritance*, which may be stated as follows: "In succeeding generations, self-fertilized plants grown from seeds of the cross reproduce both characters in the proportion of three of the dominant character to one of the recessive character. Furthermore, the recessive character continues ever to breed true, while those plants bearing the dominant character are one-third pure dominants, which ever after breed true to the dominant character, and two-thirds hybrid dominants which contain the recessive character in a hidden condition." (East).

Mendel's experiments in cross-breeding were made with the common garden peas, which are capable of self-fertilization, and which have numerous varietal forms, distinguished by the color and shape of the seed, the color of the flowers, the color of the pods, the length of the stems, and the arrangement of the flowers on the stem. He determined the heredity first of all, of each set of characters; i. e., yellow and green seeds, round and angular seeds, smooth and wrinkled seeds, and so forth. He found, for example (a) that when yellow and green seeded varieties were crossed he obtained only yellow-seeded hybrids. (Generation F₁) the yellow being *dominant* to the green which is *recessive*.

(b) When, however, the hybrid plants were self-fertilized, the seeds obtained in this second generation (F₂) were composed of both yellow and green forms,—in the proportion of three yellow to one green.

c) When the plants arising from green

seeds of the second generation were self-fertilized, only plants with green (F₃) seeds were obtained.

(d) When the yellows of the second generation were self-fertilized, some gave rise to plants with yellow seeds only, while others gave rise to plants with yellow and green seeds in the proportion of three to one, as in the second generation (F₂.)

In like manner Mendel crossed peas, each possessing one of a set of characters and obtained similar results. He found "round seeds dominant over wrinkled, colored seed coats over white seed coats, tallness over dwarfness," etc. The similarity of the results led "Mendel to the conception of pairs of *unit-characters* of which either can be carried to any gamete, or sex cell, to the exclusion of the other." De Vries adopts this idea of an organism being composed of a bundle of unit-characters in his theory of mutations, and considers a mutation to differ from the parent plant in the addition of a unit-character, not previously possessed by the parent. Such is the idea of a discontinuous variation.

Mendel carried on experiments where peas possessing two or more pairs of contrasting characters were crossed, and found that the separate pairs were transmitted entirely independently of one another. "When, for example, a tall yellow-seeded pea was crossed with a dwarf green-seeded one, the F₁ plants all exhibited the dominant character of each pair, and were tall yellows. In the next generation appear, as usual, tall and dwarfs in the ratio of 3,1, and also yellows and greens in the same ratio. If we suppose that there are 16 plants, it is clear that 12 of these will be tall, and that the other 4 will be dwarf. Now, of every 4 tall, 3 will be yellows and the other green. Out of our 12 tall, therefore, 9 will be yellows and 3 will be green. Similarly, of the 4 dwarfs, 3 will be yellow and one will be green. Consequently, the F₂ generation arising from the cross will consist of 9 yellow tall, 3 green tall, 3 yellow dwarf, and one dwarf green. In other words, there will be for every 16 plants a class of each showing the dominant character of one pair and the recessive of the other; and one plant with both recessive characters. Mendel established by experiment that these were the proportions that actually occurred, a result which has been amply confirmed since his time for other plants as well as for animals. And the principle may be extended indefinitely for any number of pairs of characters." (Punnett).

More care must be taken in spraying Japanese plum trees than with most other kinds of fruit. They are more easily injured.

*In last June issue of The Canadian Horticulturist, the improvement of plants by selection was discussed. The theory of mutations was dealt with in the September number. The article on hybridization that appears on this page will be followed by further information on the same subject.

Grafting Nursery Stock

Edward Lane, Galt, Ontario

NINETY-FIVE per cent. of fruit-growers purchase trees from some nurseryman who grows trees on the principle of quick returns for his money. In order to get these quick returns, there are two mistakes made. The faster a tree grows, the more likely it is to be a failure when removed, as the change is greater. A tree which has made moderate growth is easier transplanted than one which has made extraordinary growth. The second mistake is in the mating of grafts and stocks. What fruit grower has not noticed that some trees will persist in throwing up suckers around the roots, oftentimes above where the graft was put on?

There is from one to fifteen days' difference in the leafing out of different kinds of apples and a corresponding difference or even greater length of time in going to rest in the fall. If there happens to be ten or fifteen days' difference between the seasons of stock and of the scion, there is sure to be a certain amount of failure as we are working against Nature. The roots will be sending up sap when the parts above ground do not want it, and it goes to form what we call suckers, sometimes from the roots and sometimes from the body of the tree just above ground, showing plainly that one is at rest and the other is not.

Grafts taken from young trees or side shoots from an older one will grow much faster than those taken from the outsides of full bearing trees. If left to their own way, they will not bear fruit as soon as the latter, neither will they stand a severe winter as well. The reason is that the large roots, commonly called "tap" roots, are the ones which send up sap for the forming of wood growth and the surface or small fibres send up sap to form fruit bearing wood. The large roots are deeper down into the soil and are affected by the heat of the soil and continue to send up sap longer than the surface roots which are affected by the early frosts and consequently the wood is not so well ripened and a fast growing young tree is almost sure to have large roots instead of small ones.

A fruit grower, in order to be successful, must control the roots and thereby he controls the sap which goes to make either wood or fruit in the same way that a farmer controls bone, muscle or fat when he chooses the food for his animals.

I believe that under a powerful microscope the cells of bearing and non-bearing wood will be found to be differently formed; if so, we must start our trees bearing as young as possible. There is no reason why a tree should not commence to bear as soon as it is well estab-

lished in its place and continually bear every year when the sap is led to do its work rightly.

INFLUENCE OF STOCK ON SCION

In respect to the effect of the stock upon the graft: I have noticed that, in some instances, it has a considerable effect on the habit of growth but not so much on the fruit. Twenty-five years ago, I purchased two Duchess apple trees. One of them assumed a habit of growth foreign to that variety so much so that I concluded that it was not a Duchess at all; but, when I picked the fruit and placed samples from the two trees together, I could not tell one from the other. The tree would persist in throwing up suckers which resembled the Spy in growth and in time of leafing

or four feet. All old canes and any new growth not needed are cut out at the same time.

After removing all clippings from the field, we take cotton twine, such as grocers use, and tie the canes in bunches of six or eight each, taking care to have them bracing in such a way that when tied near the top, they will be stiff enough to carry their fruit and foliage without bending or breaking down.

The berries are then easily picked and are free from dirt. We try to pick three times a week, and place the fruit before the consumer as quickly as possible. Although our market is well supplied with wild raspberries and also blueberries, the demand for the cultivated raspberries continues good. With King for early, Herbert for medium, and Cuthbert and Golden Queen for late, we have a full month of raspberry picking. A few of



King Raspberries Growing on the Farm of Mr. John C. Gilman, Near Fredericton, New Brunswick

out. It died when fifteen years old, while the other has never shown any sign of a sucker and is healthy yet.

One of the principal causes of some kinds of apples not being as good as they were thirty or forty years ago, is the practice of taking grafts from young trees exclusively. This practice in about thirty years would result in twenty different kinds of stock, while if scions are taken from one tree for thirty years, there would be only one change instead of twenty. The fruit growers of the future will require pedigree stock in trees. A haphazard system leads to great difficulties and many changes in type.

Raspberries in New Brunswick

J. C. Gilman, Fredericton

In growing raspberries, we find it best in our section to grow to single canes, without any branches. These canes are cut back the following spring to three

the purple and black varieties have been tried but the demand for them is small. We have stopped setting these kinds.

Pruning Sweet and Sour Cherries

F. G. Stewart, Homer, Ont.

Plant the young sweet cherry trees first and then prune back to four prongs, six or eight inches long. In cutting back be sure to leave the end or terminal bud on the outside of each limb to make the tree spread outwards in growing. If the young trees are pruned first and then planted, there is danger of some of the young buds being rubbed off in handling them, as they develop early and are quite prominent.

Do not touch them again until they have made two years' growth, then with plenty of wood to choose from, trim so as to form a spreading, shapely tree. Let the trees alone for two years longer and then cut back the central upright

limbs of last year's growth, to spread out the head of the tree. This is especially necessary for the Black Tartarian, May Duke and all upright growers, otherwise they grow up a tall, dense mass like poplar trees.

After the sixth year, very little pruning is necessary, except every other year to cut back the central upright limbs to keep the tree from growing too tall and to make it spread outward.

SOUR CHERRIES

In just the same way, sour cherries should be planted first and then trimmed back like the sweet ones. After two years' growth, trim so as to form a shapely spreading tree. After that, the sour cherry trees need very little pruning. If it is continued, the trees will make only a great growth of wood and very few fruit spurs.

There is no fruit tree that requires less pruning than the cherry, after it comes into bearing. There is much more harm done by pruning them too heavily, than by leaving them unpruned. To thin out a tree, never cut out a large limb to make more room.

The Montmorency is a more upright grower than the Early Richmond, so the central upright limbs of last year's growth should be cut off to make the tree spread out and to keep it from growing too tall.

Pruning the Orchard

John Spencer, Henrysburg Centre, Que.

There is not one man in ten that knows how to prune an orchard. The best time to prune is when the sap is done running, say, in June or the first of July, as the wood of the tree is then growing. Leave no stubs on the trunks of the trees. Keep the top open to let the sun in. Cut out all suckers and branches that spread over. [NOTE.—What is the opinion of others respecting best time to prune?—Editor.]

Some men cut off all the lower limbs. They claim that it gives a chance to get around better but they have a tall tree twenty feet or more from the ground. What are apples good for that fall on the ground from such trees? Perhaps they can grade them No. 1; I cannot.

Low trees are preferable to high. You can pick and spray to better advantage. Trees have different habits of growth, and cannot be pruned by rule.

Pruning Currant Bushes

Wm. Fleming, Owen Sound, Ont.

The pruning of red, white and black currant bushes should be performed late in the fall or early in the spring, and the work should not be committed to an inexperienced hand, as the result would certainly be disastrous. The following method should be followed:

1. The operator should note the extent of space the bush can occupy, how

close the limbs are to the ground, the crowded state of the limbs and the symmetrical condition.

2. If the bush can afford it, the limbs that lie too close to the ground should be removed, and the bush generally, if required to admit air and sunshine freely, should be trimmed.

3. About half the preceding year's growth (if the bush is in a healthy condition) should be cut back, but not in any case to injure the symmetrical condition.

4. The severity of the pruning should be controlled by the space the bush has to occupy.

5. The pruning should be performed annually.



A Spruce Hedge Twelve Years Old

This hedge was planted in April, 1898, by Mr. Peter Barrett, Truro, N. S., who tells how he trained it as follows: "During the first year or two, the pruning was done with a pocket pruning knife, heading back the leaders and evening up the hedge generally. An inverted 'V'-shape is the system adopted which approaches nearer to Nature's method than any other. The hedge is now pruned about three times annually. Training to a point at the top gives the under branches a chance to thrive. Furthermore, this shape admits more sun light to the garden. By pruning this way, one can get any kind of a hedge to a desired height in less time than by the round-top system."

Some Little-Known Annuals

A list of new and little-known perennials recommended by the novelty committee of the Ontario Horticultural Association was published in the January issue of THE CANADIAN HORTICULTURIST. Herewith are mentioned four annuals recommended by this committee and in later issues will appear lists of gladioli, chrysanthemums, cannas and other garden subjects. The following annuals were noted at the Ontario Agricultural College, Guelph, as giving promise of being useful additions:

1. *Dimorphotheca aurantiaca* (golden marguerite).—A new introduction from South Africa. Might be termed an annual *Gazania splendens*, as its flowers somewhat resemble the flowers of this well known perennial plant so often seen in hanging baskets, etc., and, like the *Gazania*, it opens its flowers only in bright sunshine. Will make a good annual for bedding out in sunny positions. The deep bronzy orange flowers which it produces in profusion are very showy and conspicuous.

2. *Eschscholtzia* (Dainty Queen).—A novelty that deserves its suggestive name and is quite a departure in point of delicacy in coloring to older types. The ground work of flower is of a delicate cream, and the top of the petals are suffused and shaded coral pink to rose pink. If the type will perpetuate itself true from seed it will prove of merit.

3. *Eschscholtzia* (Mandarin).—Deeper shade of yellow than ordinary California poppy. Base of petals deep orange faintly shaded crimson, margin of petals sulphur yellow. A more imposing and showy flower than the old type. Upright habit. An acquisition to this class of plant.

4. Sunflower (Starlight).—One of the prettiest of the decorative type of the helianthus. The graceful star-like formation of its canary yellow petals, twisted and arranged very like a cactus dahlia makes this variety a splendid addition for cut flower purposes. Flower four to five inches in diameter.

The Heliotrope

C. M. Bezzo, Berlin, Ont.

This plant is propagated from seed or cuttings. It is a delightful fragrant and free flowering species and for that reason is admired by all. Seed should be sown in shallow boxes of rich light soil and placed in a sunny window of a warm room. Great care must be exercised so as not to plant the seed too deeply. The best way would be to sow the seed thinly on top and sift over it a very thin layer of fine soil or sand, just enough to hide from view. When watering do so with a fine spray until the plants are well started. Until the plants are up keep covered with glass or newspaper to prevent evaporation of moisture and the seed drying out.

When about one inch high transplant to small thumb pots and early in June they may be planted in the permanent flower bed. The soil should be very rich, as the heliotrope is a gross feeder and requires an abundant supply of plant food to produce the largest clusters of bloom. For this purpose sheep manure is excellent. Make a weak liquid from the manure and apply twice a week, or if plenty of it is at hand spread a mulch of the manure over the bed.

If desirable the plants may be taken up in the fall and potted, cutting the tops back to allow a fresh growth and they will bloom throughout the winter in the house. Young plants may also be started from cuttings rooted in the sand.

Brugmansia.—By an oversight, credit for the article and photograph on this subject that appeared in the January issue of THE CANADIAN HORTICULTURIST, was given to S. J. Jackson, Bowmanville, Ont., instead of S. J. Jackman.

A Work for Horticultural Societies and the School

S. Silcox, Principal, Normal School, Stratford, Ontario

WHEN a country has been denuded of its primitive forest and artificial products have replaced natural vegetable growth, it becomes essential for the inhabitants to beautify the



School-house Bare and Unadorned

An unimproved opportunity, and there are hundreds of others like it in Canada.

bare and unattractive landscape with a second growth of flowers and shrubbery. Any one who travels through Ontario will discover that people have lived in houses for ten, fifteen or twenty years and have planted nothing to make those houses homes in the true sense of the word. This is more inexcusable when we consider that within a mile or two of any house in Ontario may be found shrubs, vines and annuals which could easily and successfully be transplanted to the grounds of homes or schools, where they would transform the barren surroundings into bowers of beauty. The reason this is not done is due to one of two things, ignorance or lack of interest in anything better than that which exists, or probably to both.

What can be done to change this state of affairs? It seems to me that there are only two organizations in Ontario which can bring about a change but these organizations are equal to the task. They are the public school and the horticultural societies and the latter will do their best work by using the former for the medium of transmitting their views. Of course this means that school gardens should be established in connection with our schools, more particularly in our city schools. One teacher who has done good work in connection with a small city school in the way of decorating a very inattractive backyard says:

"The garden gives pupils a practical lesson in the rights of citizens. When they have assisted in digging, planting and weeding, they have a sense of ownership in the garden and they expect that it will be allowed to grow and flourish, unmolested by the passerby; therefore, they do not pick the flowers or interfere with the property of their neighbors.

"Anything that opens the eyes of the

child, even a little, to see the beauty of color and form in the world about us or that helps to show him how a little expense and labor will transform what was ugly into a delight is well worth while. For example our fences and out-buildings are now a 'thing of beauty' in their dress of morning glories, upon which the eye rests with pleasure.

"Our garden serves as a means of beautifying their own homes. The children are at liberty to pick the seeds of any of the seed-bearing plants and the geraniums are broken into slips and given to the children with instructions for planting them.

"We also have a few plants in our windows throughout the winter. These give a cosy look to the room and serve as a rest for tired eyes.

"Incidentally, the children learn the value of birds, bees and beneficial insects; also something of the formation of soil. We rake and then burn the leaves and old plants on one of the beds, the ashes being thus preserved for a fertilizer or bury the leaves (all but the first to fall which are burned to destroy the insects) that they may decompose and so enrich the soil."

It may be well to sound a warning note, through the medium of THE CANADIAN HORTICULTURIST, against the false nature study which teachers are so apt to resort to in the ordinary class room. About seventy-five per cent. of the lessons in this subject are not as valuable as lessons in grammar, geography or literature, because they are not the result of the children's experience nor do they incite the children to acquiring experience with nature first hand. Let this be the test of success in nature study—more outdoor study and less class-room

work, more beauty created and less talk about the beauty of creation.

Polyanthus

Editor, THE CANADIAN HORTICULTURIST: How very seldom one finds the charming spring flower Polyanthus (*Primula Polyanthus*) in Canadian gardens. It is one of the oldest of all the florists' flowers, and in Old Country gardens it has its thousands of votaries. Three or four years ago I imported two or three packets of seed from a seed firm in England, and from these seeds I have had some splendid plants. They flower about the same time as tulips, and I have them in bunches in my peony bed. After they are finished flowering, I divide the roots, and get numbers of new sturdy plants for re-planting and distribution among my friends.

Sow the seed in February, March or April in pans or boxes, and when large enough, transplant to the place in the garden where you wish them to grow. They will flower the following spring.

They are perfectly hardy, and I never remember having any of them winter-killed; they get no protection, excepting nature's snow, in my garden.

There is an indescribable charm in spring about a bed of young polyanthus flowering for the first time.—J. C. Hodgson, Westmount, Que.

An excellent subject among trees for planting on the lawn is the cut-leaved weeping birch, but it should not be planted too promiscuously. An occasional specimen is very striking when planted individually on the lawn or backed by trees of darker foliage and bark.



Outhouses and Fence Covered with Morning Glory—Work of School Children

Boys' yard, Manitoba street school, St. Thomas, Ont., Miss A. McColl, Principal. All the work done by pupils of first and second book classes.

What Amateurs Can Do in March

THE best gardens are those that have been planted beforehand. If you wait until time for seed sowing you may not have time to do just what you would like. Decide now on the general scheme for next season and order plants and seeds right away.



A Grand Specimea Geranium—Five-years Old

This plant had eighty-two blooms last August. It is kept in the house in winter and outdoors in summer. Owned by Mr. Barlow Cumberland, Port Hope, Ont.

In localities where the season is early, considerable work may be done outside this month. Remove from the garden and lawn all rubbish that was left over winter. If the snow leaves early, lawns may be raked and rolled and walks and drives may be graded and put into shape.

Repair all holes in tree trunks by removing the rotten wood, singeing the cut surfaces and filling with cement.

Some kinds of shrubs and vines may be pruned. Remove dead branches and head back limbs that are growing too vigorously in any one direction. Shrubs that flower very early in spring should not be pruned until after blossoming time as they produce their flowers on twigs that were formed last year. Prune hardy roses. See page 61.

THE VEGETABLE GARDEN

Make a hotbed. Prepare the material now. If the manure is fresh from the stable, throw it in a heap for a week or ten days. Turn it once or twice during that time. Use manure that contains a fair proportion of straw. If the manure is not to be placed in a pit, see that it extends at least one foot around all sides of the frame. Have the manure two and one half feet deep. Tramp it well when building, and finish the job neatly. After placing the frame, raise the sash for a couple of days in order to allow superfluous moisture to escape. Use about six inches of soil on top of the manure.

Home-grown rhubarb may be had early by placing a barrel or box, from which the top and bottom have been taken, over a clump in the garden. Cover the top at night and during cold days.

If you are burning wood in the house, save the ashes for use as a fertilizer. Keep them dry.

AMONG THE FRUIT TREES

If you have fruit trees that are not producing satisfactorily, or are not the varieties that you want, graft them with scions of good varieties. Read the article on page 54.

With most fruits and for most purposes, this is the best month for pruning. Do not leave this work until too late. Read the articles on pages 54 to 58. Prune grape vines.

If you did not mulch your strawberry bed last fall, there is still time to give it some protection against alternate thawing and freezing this spring. Cover the bed with straw or boughs in order to keep the ground frozen as long as possible.

FLOWERS INDOORS

Hydrangeas, oleanders and similar plants can be brought to the light and started into growth. Put them into larger tubs or pots if necessary. Repot old tuberous begonias. Cannas and dahlias may be started in pots. Divide them before potting.

Re-pot geraniums, ferns and other plants required for summer decoration. Water them thoroughly.

Cuttings of fuchsias, geraniums and verbenas will strike readily in sand. When rooted place in very small pots at first.

Bulbs that have been flowering may be stored in the cellar without water until they can be planted outdoors.

Freesias should not be dried off hastily. After they are out of flower, give them water less frequently until the foliage is quite yellow, when water should be withheld altogether. Keep them in the pots until next season.

Sow seeds of nasturtiums, petunias, verbenas, cosmos, lobelia, antirrhinum, salvia and mignonette in boxes or pots. Six or eight weeks before it is time to start plants in the open is about the right time to sow most seeds inside.

Peonies for the West

Rev. Andrew B. Baird

The peony is one of the most beautiful and desirable of our herbaceous perennials. It is perfectly hardy, and while it responds to good treatment you cannot kill it by neglect; it maintains itself from year to year and produces new plants without effort or attention. Its duration of bloom is considerable, and while it is flowering it is the most magnificent thing in the garden. I will give

only a dozen varieties—four white or cream color, four pink and four red or crimson.

Festiva maxima is an old favorite on account of the size, purity and beauty of its flowers. They are of the purest white with occasional spots or streaks of carmine, which heighten the beauty of the whiteness. It is an early bloomer and a good keeper.

Couronne D'Or has very fine double blooms. They are white with a creamy tinge, almost yellow, and little splashes of carmine on the centre petals.

La Tulipe when it opens has a pinkish tinge, but after a day or two it fades to pure white. It is deliciously fragrant.

Whitely is a white flower with a creamy centre, changing to pure white. It is very large and very double.

Delicatissima is large and pink and fragrant. It took the prize as the best pink at the Chicago show in 1905.

Queen Victoria is a large and showy flower. The outer petals are of a clear rose color, the inner petals straw color.

Humei blooms late, has extraordinary large blooms with a distinct cinnamon fragrance. The color is a shiny pink.

Queen Caroline is an old fashioned variety, in color a rich deep rose, very large and very double.

Crimson Queen has finely fringed blooms—clear, bright crimson in color. The plant is strong and the flowers perfect.

Rubra superba is one of the best of the crimsons. It flowers late in the season.

Francoise Ortegal—This is an old favorite, purplish crimson with a yellow centre.

Felix Crouse—Large bell shaped blooms, brilliant red with a lighter colored centre.

There are a few yellow varieties, but in growth, size and form of bloom, etc., they are inferior to the more common colors. There are also many single varieties of real merit, but for use as cut flowers the single varieties are not likely to grow in favor. They are beautiful as half open buds, and since they are earlier than the double kinds they serve to lengthen the peony season.

The Back Yard.—While the good citizen is clearly justified in properly planning and caring for a nice front lawn in order to please the travelling public, he should not forget the inmates of his own house. These usually occupy the rear of the house much of the time. Would the travelling public enjoy a view of the back yard on many farms? What proportion of city men's back yards is entrancing? Why not let passers-by pass on while we expend some energy on that part of the premises that we are sure to see very often? —E. Morden, Niagara Falls South, Ont.

Pruning Rose Bushes

By "Amateur"

DISAPPOINTMENT surely awaits him who, having procured a dozen or so of rose bushes in the early spring and having carefully planted them just as they came from the nursery, anxiously awaits the blooming season, expecting to be able to gather an armful of such roses as he sees pictured in the seedsman's catalogue, and all because he has failed to realize that the proper pruning of a rosebush is one of the most important features in its successful cultivation.

Roses differ so greatly in their habit of growth that no directions for pruning established plants can be given that will not require modification in respect to certain individual plants. There are, however, two rules which must be followed invariably. One is that all pruning should be done before any growth begins in spring, and the other is that all plants which come from the open ground must be pruned before planting or immediately after; such plants should have all weak growth removed entirely and the stronger shoots cut back to within four to ten inches of the ground. If set out just as they are received from the nursery, many of them will die and at the best but a weak growth will be made. No matter how carefully they have been removed, many of the smaller roots will have been destroyed and unless a corresponding amount of the top be removed, there will not be sufficient sap to nourish so many buds.

In dealing with established plants, if quantity rather than quality be the object aimed at, the only pruning necessary is to remove the dead and weakly wood, and only cut back the remaining shoots to a point below where the winter has killed the immature growth of the season before. If, however, the object be, and it should be, the promotion of a symmetrical growth and the improvement of the quality of the blooms, a different course should be followed and here practical experience must determine what is to be done in each particular case, always remembering the general rule laid down by all writers on the subject, that "plants of a delicate growth should be severely pruned, while those of vigorous growth should have some of the branches cut out entirely and the remaining ones only moderately shortened." Keeping this rule in mind, it will be found that plants of moderately vigorous growth should be cut back severely, say to four or five buds, always cutting at a bud pointing outwards and of course to a point below where the wood has been injured by the winter's frost.

To severely cut back such vigorous growers as Clio, Margaret Dickson, John Hopper, Charles Lawson, Jules

Margotten and some others, results in a crowded growth of wood and very few blooms and it will be found that to remove some of the branches entirely and only shorten the remaining ones a few inches, will throw the whole strength of the plant into the production of bloom. One shoot, however, should be cut back severely in order to promote growth near the bottom of the plant.

Climbing roses should, after the pruning recommended at the time of planting, have only the dead and weak shoots removed and one shoot cut back to three or four eyes for the purpose just mentioned, viz., to prevent a bare appearance near the bottom.

Some recommend a summer pruning after the blooming season is over in order to remove withered blooms, and to promote autumnal bloom, but the true lover of the rose will have few withered blooms to remove because he will find that one of the greatest pleasures connected with his hobby is that derived from the distribution of his flowers among his friends and in doing this liberally he will probably find that he has done all the pruning necessary.

The tools required for pruning are a good pair of pruning shears and a sharp pruning knife with a hooked blade. The operator will probably discover for him-

self that a good strong pair of leather gloves are not to be despised.

Nicotiana Affinis

No garden is complete without a few plants of this delightful, fragrant free blooming annual. Where the grounds are fairly large a good plan would be to plant them at intervals throughout the garden, and the whole surrounding atmosphere, charged with the most deliciously pleasant sweet-scented odor imaginable will possess that indefinable magnetic influence which makes one long to linger near.

Seed may be sown in the cold frame or in the open garden in May, and when the young plants are large enough transplant to the place where they are to grow. If planted in clumps of two or three set the plants about fifteen inches apart. If given fairly rich soil with frequent tillage to keep it loose and fine on top, and kept well watered during dry weather, the plants will bloom far into the season.

For training over stumps, fences, out-buildings, trestles and screens, the grape vine can be used to advantage.

Keep the leaves of house plants clean.



A Beautiful Dorothy Perkins Rose Growing at the South Side of a Verandah

At the residence of Mr. John McQuaker, "Elf Lodge," Owen Sound, Ont. In a letter to THE CANADIAN HORTICULTURIST, Mrs. McQuaker tells its history as follows: "This rose was sent out by the Horticultural Society five years ago. It is trained over a wire netting which is fastened at the ends to the pillars of the verandah. About the end of November, we place a barrel against the bush to prevent the snow breaking down the branches in winter. The fastenings are taken out and the bush is turned over to the ground. The bush is well manured in fall and gets a little liquid manure during the summer. It has never been pruned except to take the dead wood out of it. It bears immense clusters of roses, many of them containing eighteen to twenty blooms.

What Can Be Grown in a City Back Garden

George Baldwin, Toronto

HAVING a fair sized garden, namely, thirty-one feet, six inches wide by about 130 feet long, I decided three years ago to become an amateur gardener and went to work and planned



A Well Filled City Back Garden

In this garden an amateur has grown many kinds of vegetables that have competed successfully at the Canadian National Exhibition with stuff grown by market gardeners. Mr. Baldwin, who tells something about his experience in the accompanying article, is yardmaster for The Canada Foundry Co., Limited, Toronto, and works ten hours a day. As he has not much time for gardening, he was in his garden at four a.m., every morning last summer.

it to the best of my ability. First, I made a lawn next to the house about twenty-five feet by forty feet with flower beds on all sides. This left about eighty-five feet for vegetables and fruits.

I then saw the necessity of having a small greenhouse to raise my plants in the early spring. So I got some second-hand bricks and with the assistance of a friend we built the brick work up about two feet above the ground, got some lumber and glass, put it together, painted it and had it all ready for the spring of 1907. The inside measurement is nine feet by twelve feet with an eighteen-inch passageway in the middle.

I have had such pleasure and success from it, that I would strongly recommend anyone to put up a small greenhouse in preference to having a hotbed, for after you have gotten your plants all out in the spring, you can grow the long cucumbers, egg plants, peppers, etc., to advantage.

I laid my vegetable garden out on paper and had all my plans and arrangements made for an early start in the spring. I manured the ground heavily the previous fall.

I had such good results that I made up my mind to compete at the Canadian

National Exhibition the following year and which I did, gaining three prizes. This was an incentive for me to try and do better last year, and regardless of the fact that I had to compete in the same classes with market gardeners and farmers (who have almost as many acres as I have feet), I was successful in obtaining the following prizes: Fourth for collection of vegetables with sixty-one varieties, second for greenhouse cucumbers, fourth for a collection of tomatoes (containing twenty-three varieties, including the small fruited varieties), and I took also third prize for a bunch of marigolds.

Last fall we stored enough vegetables to do us till next summer, thus combining pleasure with profit. I know of several gardens as large as mine. If the owners of them only knew what pleasure I have derived from watching the things grow, I am sure we would have more amateur gardeners in this city and eventually get an amateur class at the exhibition, which I have been aiming at for two years.

I did not have very good success with onions, peppers and egg plants. Perhaps some friend will give me some pointers. [An article on onion culture is published on page 65. Pointers on growing peppers and egg plants will be welcomed for publication.—Editor.]

The Best Hardy Shrubs

J. McPherson Ross, Toronto

IN THE CANADIAN HORTICULTURIST for March, 1909, I gave a descriptive list of twelve hardy shrubs, as follows: *Hydrangea paniculata grandiflora*, *Spiraea Van Houttei*, Japanese Golden Bell, *Weigelia rosea*, althea or rose of Sharon, Persian lilac, garland syringa, Japan quince, deutzia, purple barberry, purple fringe and flowering currant. To extend this list into twenty-four varieties, we must have the flowering plum (*Prunus triloba*). It makes a striking shrub in any lawn in early spring.

My next choice is the white lilac which is too well known and liked to need description. As its companion we will include Charles X. lilac and also the variety Josikea which blooms after all the other lilacs have faded and gone.

The snowball is worthy of cultivation and a place on the lawn. When it blooms it makes a great show.

The Tartarian honeysuckle is another old favorite and is strikingly ornamental when in full flower. Either the pure white or the deep pink should be in every collection. It has the added attraction of orange-colored berries in the fall and in winter its greyish white branches

make it one of the best shrubs for color effect in winter. We have to have more spireas in the collection. Plant either *S. prunifolia*, *S. Billardii* or *S. ulmifolia*, all showy and desirable in any situation.

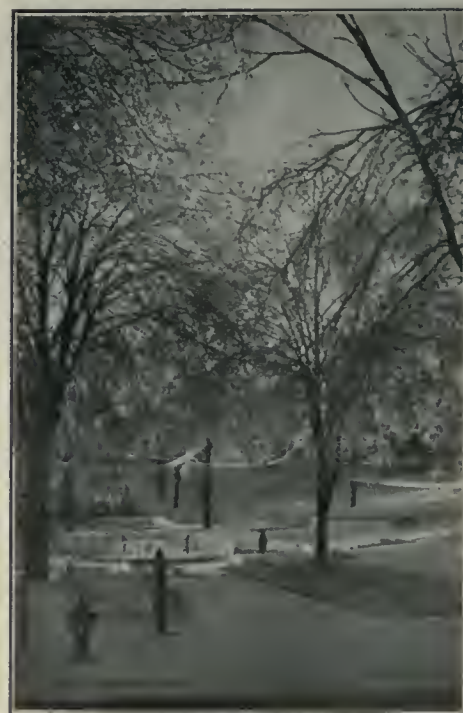
Our winters are too severe for the growing of the evergreen holly. The best substitute for it is the holly-leaved barberry, (*Mahonia aquifolium*). This does well in partially shaded places, especially when in a clump.

One of the grandest of shrubs is the *Syringa grandiflora*. It grows to a height of ten to twelve feet and makes a great show when in flower. The bloom is exceedingly fragrant and its strong habit of growth makes it useful as a screen to fill in a gap in a belt of trees. It stands the drip of the trees well and grows under the most adverse conditions. The African tamarisk is a unique shrub with fine green foliage of a feather-like nature and small pink flowers.

The common barberry, as a specimen shrub, is quite attractive when in bloom and presents a pleasing sight in fall and winter from the profusion of its scarlet berries. The bladder senna (*Colutea arborescens*) is a strong growing shrub with yellow pea-like blossoms followed by inflated membranous pods containing seeds.

Last but not least is the *Azalea mollis*. Its orange-colored blossoms on naked stems make it a very ornamental shrub in the earliest days of spring.

The evergreens have an important place in producing landscape effects, and in planting for protection from winter winds.

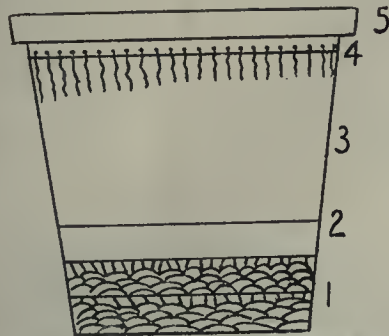


A Winter Scene in a Canadian Park
Victoria Park, Peterboro, Ont.

Sowing Garden Seeds

A. V. Main, Almonte, Ontario

THE success of our seeds generally depends upon how we treat them for germination. Failures and complaints of bad seed are quite common. We are too apt to lay fault on the individual who furnishes the seed, con-



Flower Pot Prepared for Seed Sowing

1. Drainage material, broken pots, clinkers, etc. 2. Rough leaves or decayed manure. 3. Prepared soil. 4. Seeds and covering of fine sifted soil. 5. Space for water. Prepare boxes in similar fashion.

demning his seed as rubbish. I would not give the seed trade immunity altogether, but the non-germinating of seed is often due to our own negligence.

For flower seeds good, clean pots and boxes are essential. Boxes three inches deep with several holes bored in the bottom for an outlet for water, and made a convenient size, are first-class for seeds or plants. A good layer of rough leaves, rotted manure, pieces of broken flower pots, oyster shells or rough ashes should be at the bottom of the pots or boxes, then fill up moderately firm with fine soil to within an inch of the top. A mixture of loamy soil, sand and leaf soil make a suitable compost.

We have failed as yet to procure sieves from any of the leading seed firms for the purpose of grading or sifting the soil for seed sowing. For this purpose a fine mesh of mosquito netting will do by nailing a two-inch board round a square of it. Chicken netting, half-inch mesh, will also make a good sieve for sifting soil. With boxes, a flat board will make an equal level for the soil; for pots, anything round and flat is sufficient.

For very small seeds, such as begonia, gloxinia, lobelia, antirrhinums and coleus, water the seed receptacles with a fine rose can an hour prior to sowing. A mere dusting of fine soil is sufficient covering. The size of the seeds will almost determine the covering of the soil required. Begonia seed does not require any, coleus requires very little, while castor oil plant and sunflower want half an inch of soil.

A piece of glass should be laid over the seed pot or box, also a piece of brown paper before the seedlings appear, then gradually withdraw it when the seed receptacles become very dry. Do not apply a shower bath overhead,

but hold the seed pot half way down in a pail or tank of tepid water. The water will thoroughly saturate the soil from the bottom, finding its way to the surface. This will be sufficient for a good many days, and better than daily dribbles on the surface. Seedlings like to be kept tolerably dry before they gain strength. With a good sunny window, many fine plants can be raised, then remove to a frame outdoors.

Any haphazard or slipshod fashion with vegetable seeds will only result in disappointment. The ground is best forked over the day it is to be sown. A fine open mould, neither too wet nor dry is best. Gardeners on a small scale should prepare a fine tilth of soil, raked level.

The alert gardener will take the first opportunity of a good day to sow onions, parsnips, carrots, beets, turnips, cauliflower, cabbage and pasley. All these will do with half an inch of covering. The culinary peas and flowering sweet peas require very early sowing, three inches deep. Label all seed correctly and give date of sowing.

Before we convict the dealer of bad seeds, let us consider if we have done justice in the preparation of the soil and the seed bed, having climate and price of seed duly noted. Buy from reputable seed firms.

The Worth of Tree Planting

Editor, THE CANADIAN HORTICULTURIST: At your request I am sending a photograph of a corner in my garden containing hydrangeas, asters and gladi-

oli. The large maple and elm trees on the street were planted by me thirty-eight years ago. Now, in my sixty-third year, I take lots of pleasure in daily viewing their silent, majestic appearance.

If young people of both sexes would plant trees they would derive daily gratification in watching nature's monuments growing in stately magnificence; besides, they would contribute lasting blessings to the rising generation. I speak from experience, having set in this town of Coaticook some 500 native forest trees besides many foreign ornamental trees and hedges. Some of the native elms set forty years ago, could not now be purchased for fifty dollars each; for which I received the magnificent sum of fifteen cents each for digging, setting and tying to two stakes. This shows the financial standing of the trees today. Where and how can a small investment be made to better advantage than the setting of a few trees in a suitable place?—W. F. Hool, Coaticook, Que.

An old-time favorite among the shrubs is the golden currant (*Ribes aureum*). Whether in flower or in fruit it is very ornamental. The flowers are yellow and sweet-scented. It blooms late in May and grows about eight feet high.

Of all shrubs that we have, probably the most popular is the *Hydrangea paniculata grandiflora*. It starts to bloom late in July and lasts until frost. The blossoms are white at first and gradually change to a rosy pink. This shrub grows six to ten feet high, and is most effective when planted in masses.



Asters, Gladioli and Hydrangeas in a Garden in the Province of Quebec
Garden of Mr. W. F. Hool, North Coaticook.

Tomatoes in Western Home Gardens*

Brenda E. Neville, Cottonwood, Saskatchewan

A FEW years ago it was a matter of doubt as to whether or not ripe tomatoes could be grown with any degree of certainty in Saskatchewan. Even yet the "very best" methods are being sought, and much greater success awaits the future tomato grower than has been attained hitherto.

There are two methods of raising tomatoes here. Both deserve a trial, as one method may suit some soils better than the other.

The first method to be considered is that of early planting of seed, and transplanting of plants. I will not touch on the method to be followed by market gardeners, or by wholesale tomato growers. The instructions given are merely for home gardens.

Selection of seed is important. The earliest varieties only should be chosen. I have found Spark's Earliana to be the best. June Pink is good, also Early Ruby, and several others. But Earliana is the surest.

A sandy loam is the best soil in which to plant the seeds. If planted in soil very rich in leaf-mold the young plants are apt to make too rank a growth, and are harder to transplant.

Boxes four inches deep, ten inches wide and twelve inches long, will be found most convenient for the first sowing. Each box should be fitted with a pane of glass on top. Fill the boxes three inches deep with finely sifted soil, pressed rather firmly, and very level.

Mark with the edge of a thin board, drills one-quarter of an inch deep and one inch apart. Sow the seeds in these drills, quite thickly. One-eighth of an inch is far enough apart for the seeds to lie. Cover the seeds evenly, and press the surface of the soil down with a flat board. Now place the box in a large pan of water at a little higher than blood heat. The water should come nearly to the top of the box. It will gradually permeate the soil until it is all thoroughly saturated, and is better than watering from the top, as it does not disturb the seeds. When the soil is well soaked, lift from the pan and allow to drain.

After the free water has drained out of the box, cover the box closely with the glass, and place the box in a warm, sunny window. The seeds should germinate in from eight to twelve days, and should require very little water until up. If the room is very dry, a little water may be very gently sprinkled on the surface of the soil if it is in danger

of drying out too much. The soil should be kept soft and moist all the time.

The glass should not be removed until the plants crowd against it. It should be raised a little to admit air, and finally be removed altogether.

The plants can be left in this box until they have grown several inches high, and have four or five leaves. Then they should be moved. It is best to place them in separate pots if possible. If this is impossible, larger boxes, with about five inches of soil in, will do nicely; or I have used tomato cans with holes punched in the bottom, filled with soil. Three plants can be placed in each tomato can if desired.

When transplanting, the plants may be lifted by means of a sharp table-fork run well under them, commencing at the end of each row of plants. Then hold each plant by the leaves; gently fill in a little earth over the roots; add a quantity of cool water; fill up the can with earth, leaving the roots in a wet bed, while the surface of the soil is loose and comparatively dry. Do not place the plants in hot sunshine for a day or two; but avoid chilling, as that will rot them very quickly.

The plants may be kept in these separate pots until the beginning of April. They may be showing flower-beds, and will seem quite large. By this time, if spring opens in reasonable time, the weather will be safe for making hotbeds.

Potato Planting by Machinery

W. A. Broughton, Sarnia, Ont.

Labor is higher and harder to get now than it was before the advent of the potato planter, which was ten or twelve years ago. In 1897, my brother and myself planted ten acres of potatoes by hand, costing about \$1.25 per acre (marking, planting and covering). The weather set in dry, and there was a little delay in the potatoes starting owing to the fact that in covering with the cultivator nearly all the soil was dry that covered the seed.

The potatoes came up fairly even, but a week or ten days late. The growing season was good and they looked fine (new land). Some parties driving past told me they never saw such a fine looking field of potatoes. About the middle of August the blight struck the field and the yield was only seventy bushels per acre; whereas, had the potatoes started a week or ten days sooner the crop would have nearly doubled.

The point I wish to make is this: Had the potatoes been planted with a planter they would have been put in moist soil and covered at once and would have come up a week sooner besides getting them planted in less time. After using

a potato planter for eleven years we would not have them planted by hand if it were done without charge.

Some of the advantages of using a machine for planting are: Any depth desired, evenness in depth, light or heavy covering, saving in time in getting crop in (this is important in both early or late planting, as the weather may change and the land become too wet causing delay in finishing field), and the planter puts the seed in moist soil, thus ensuring the best possible condition for seed to start.

Another point in favor of the planter (I use the two-men planter) is that the seed is spaced in the row at the distance you desire—from twelve inches to twenty-four inches, two inches in each change of gear. Whereas, if you hire boys to plant, the spaces will be irregular—from one to three feet.

The planter we use requires a team and two men (or a man and a boy) and makes the row, opens the furrow, drops the seed and covers it in one operation, and will plant 100 per cent perfect work. It has also a fertilizer attachment which spreads the fertilizer in the furrow and mixes it with the soil before the seed is dropped. From four to six acres a day can be planted with the machine.

If one or more growers plant ten acres a potato planter will pay ten per cent. interest on the investment. My planter paid me seventy-five per cent. of cost in the first season, my boys planting fifty acres for neighbors.

Onion Culture

E. G. Malcolm, Scotland, Ont.

Each grower must do a certain amount of experimental work for himself before he can find out what will be the most economical fertilizer for him to use for onions, because the soils differ in their chemical as well as in their physical composition. Onions require a good loam or sandy loam soil with loam predominating. It should be made as rich as possible, and I know of nothing better than a heavy application of barn yard manure, well rotted. Plow as early in the spring as possible.

Prepare the seed bed by using a heavy roller and working it up with harrows. Then use a scraper of plank to level the ground. Have the ground thoroughly warmed before sowing. The more work there is done before sowing, the less labor there will be after the onion has started to grow as you can then better keep the weeds in control.

Sow in rows from twelve to fourteen inches apart. About three pounds of seed to the acre is sufficient if No. 1 seed is used, but if you are doubtful of the seed, sow more. Always test the seed before sowing.

Buy from advertisers in this paper.

*Although this article was written by Miss Neville for amateur gardeners in the western provinces, the information that is given is equally applicable to conditions in many other parts of Canada. Amateurs in eastern Canada can follow it with profit. Further information will be given in next issue.—Editor.

How to Grow Large Onions

A. V. Main, Almonte, Ontario

LET us outline briefly the culture of transplanted onions and their value in comparison with the ordinary method of sowing outdoors. The crop is decidedly better, because the plants have two extra months' growth, being sown generally in March. There is also less loss of seed and the extra labor is not worth considering. This idea of transplanting, however, not only with onions but other plants, looks a useless and unnecessary process to many amateurs and market gardeners. Transplanting is done when we are not so busy, and a plant that is set out with

equal parts of old manure, loam and leaf-soil, adding a little sand and wood ashes, to be visible in the compost when mixed. Use boxes about five inches deep of convenient size. Cover the bottom with some rough manure, then fill to within an inch of the top. Make the soil firm and a level surface by using a smooth board, with a handle attached. A level surface is imperative for small seeds. Sow thinly, give each seed a "five-cent" space. Thoroughly saturate the soil with a fine sprinkling can. Place in hotbed, greenhouse or your seed raising quarters, and cover with brown paper,



Leamington Giant Onion, an English Variety, that yields a Heavy Crop of Large Bulbs

The specimens illustrated were grown in the gardens of Mr. B. Rosamond, "Pinehurst," Almonte, Ont., by his head gardener, Mr. A. V. Main. They averaged one and one-quarter pounds each.

fine fibrous roots, healthy and vigorous, has no comparison at all with a weak, spindly, stunted, lop-sided plant with scarcely a root, culled from a box amongst hundreds, the one supporting the other.

A good open position is the first consideration. It must be well drained and clear of trees, hedges or buildings, as shade, want of sun and wet ground are causes of thick-necked onions. Select good rich soil, moderately heavy. Prepare the ground in the fall, digging or plowing deeply and giving a heavy dressing of horse, cow or poultry manure. It takes a couple of seasons to get ground into onion condition. With the yearly application of manure, farm and artificial, the ground will grow splendid onions for six or seven years, then a change of crop such as celery should follow for two seasons.

SOW SEED THIS MONTH.

Sow the seed in February if convenient, or at least early in March. Sift

to retain moisture and darkness before germination moves.

The young plants must be kept to the light and aired to be sturdy. Sprinkle overhead on sunny days and keep the roots moist. For exceptionally large specimen onions, transplant into other boxes of rich soil two inches apart, each way. If this method of "raising onions early" is to be carried out extensively, the seed may be sown in hotbeds to have a quantity for planting a large area.

Gradually harden off to the weather outdoors, making preparations to plant early in May. The need for hardening off plants to the outside weather is much neglected or unforeseen by many. Onions suffer if not properly looked after in this respect.

VARIETIES.

The variety that I grow is an English one, Leamington Giant, yellow, considered the largest onion in cultivation. The writer of this note can supply any information for seed. I have treated other

varieties from Canadian firms such as Giant Prizetaker, Southport, White Globe, Red Wethersfield and others, but so far none are so satisfactory as the one illustrated on this page. Onions of this type command a high price, have a ready market, are good for exhibition purposes and culinary use, have mild flavor and reliable keeping qualities.

Growing Cauliflower Plants

A. Knight, Kingston, Ont.

To be successful in growing cauliflower plants, there are three essential things to be followed: 1. Proper soil, which should be of the very best obtainable—a loose, mellow soil made rich with fine rotted manure, one that will remain loose and keep moist; it cannot be too fine, for the finer the more rootlets the plants will have, and the more soil will adhere to them when plants are taken up. 2. The seed, which should be the best to be had. 3. Care in growing the plants.

If plants are required for early crop, seed should be sown by first of March in a greenhouse or properly made hotbed. The seed bed should not be too warm but of proper warmth to keep plants growing healthy. Plant the seed about one-half an inch deep, and not too thick, as thick planting makes plants too fine, and they are more apt to damp off. The bed requires plenty of fresh air on warm days to make stocky plants.

As soon as the plants are large enough, that is, well out in second leaf, which should be in three weeks after sowing, transplant them into a new bed, which should be made a few days before needed.

If plants are wanted for extra early, it is better to pot them in fair sized pots, as by doing so you can plant in the field a larger plant, and not check growth. Great care must be taken to prevent any serious check; for plants are apt to have very small heads or "button up" as it is termed, if any serious check occurs in growth.

For late crop, seed is better sown in outdoor ground. Plant not too deep, in warmest and best soil you have. Thin out the plants while small to make good stocky plants. Watch for cabbage fly, and dust plants often.

The soil for blackberries must be well drained, and it should be a strong loam.

Asparagus, that daintiest of spring vegetables, is as easily grown in Saskatchewan as is the indispensable rhubarb.

Rhubarb has been the standby for the western farmers' table; but it is being supplemented by many of the small fruits that respond to fair treatment in the western climate, such as currants, gooseberries, strawberries and raspberries.

The Canadian Horticulturist

Published by The Horticultural
Publishing Company, Limited

PETERBORO, ONTARIO



The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO
QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD
ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

A. B. CUTTING, B.S.A., Editor

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription price in Canada and Great Britain, 60 cents a year; two years, \$1.00. For United States and local subscriptions in Peterboro, (not called for at the Post Office) 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than \$1.00.

4. Change of Address.—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising Rates quoted on application. Copy received up to the 18th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

6. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT.

Since the subscription price of The Canadian Horticulturist was reduced from \$1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with Dec., 1909. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Some months, including the sample copies, from 10,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

January, 1909.....	9,456
February, 1909.....	9,310
March, 1909.....	9,405
April, 1909.....	9,482
May, 1909.....	9,172
June, 1909.....	8,891
July, 1909.....	8,447
August, 1909.....	8,570
September, 1909.....	8,605
October, 1909.....	8,675
November, 1909.....	8,750
December, 1909.....	8,875

January, 1910.....	8,925
February, 1910.....	8,967

Total for the year .107,638

Average each issue in 1907, 6,627

" " " " 1908, 8,695

" " " " 1909, 8,970

Sworn detailed statements will be mailed upon application.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

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THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

GRANT SHOULD BE INCREASED

No more deserving petition has been placed before the Minister of Agriculture for Ontario this session than that of the Ontario Horticultural Association which asks for an increase of \$8,000 in the grant to horticultural societies. Excellent work is being done by these societies, and it is increasing rapidly. The deputation that waited upon the minister pointed out that the growing increase in membership requires at least a proportionate increase in the grant. Further reasons also were given, as reported on page 72.

The horticultural societies of Ontario are engaged in a work that means much to the province. Probably no other phase of agricultural effort has such an important influence on the general welfare of the people. The work should be encouraged. Each member of the legislature should support it personally. The future adornment of our homes and public parks depends largely upon the aid that is given to our horticultural societies. Personal gain does not enter into the proposition in any way. The societies are working for the general uplift of life and living. Their petition for an increase in the grant should be considered favorably by the government and passed at this session of the legislature. Failure to give the increase asked for can be taken only as an indication of ignorance, on the part of the government, of the splendid educational work the societies are doing as well as of their pressing needs.

A POSSIBLE INVADER

One of the worst insects known to fruit growers anywhere in the world is the Queensland fruit fly. Unless preventive action is taken, it may some day invade Canada. Many other injurious insects have been imported from abroad. The San Jose scale, the apple maggot, the brown tail moth, the currant worm and a host of others have come from other lands. They gain entrance to our country in spite of inspection at the ports of entry. If their presence is known at the beginning, their spread can be and in some cases has been prevented to a large extent, as, for instance, in the case of the brown tail moth in Nova Scotia. It is well, therefore, always to be on the watch for newcomers. From reports of its operations in Australia, the most dangerous possible intruder is the Queensland fruit fly.

About two years ago, THE CANADIAN HORTICULTURIST wrote to the late Dr. James Fletcher, then entomologist and botanist for the Dominion Experimental Farms, regarding the possibility of this pest gaining an entrance to Canada through British Columbia, and received the following reply, now published for the first time: "The Queensland fruit fly (*Dacus tryoni*) is described as a serious pest of orchards in Queensland and New South Wales, but I do not remember what kinds of fruits it infests. If fruit is imported into British Columbia from Australia, it is possible that this insect might be introduced; but I do not know what fruits would be brought from Australia, and even if the insect were introduced I should think it would be hardly likely to propagate and spread there. I have never heard of a specimen of this fly being taken in British Columbia."

If fruit is imported from Australia into

British Columbia, it is quite probable that this insect will arrive some time, if it has not already done so. That a trade in fruits is carried on between these two countries is stated in the following extract from an interview with Mr. W. E. Scott, Deputy Minister of Agriculture for British Columbia, given to and published a few weeks ago in Canada, an English publication: "With Australia we carry on a kind of exchange trade. She supplies us with fruit in our off season, and in return buys our apples in her off season, the seasons being opposite, so each of us gets an all-year-round supply."

To get information regarding the Queensland fruit fly from one who knows the pest at first hand, we wrote recently to Mr. W. R. Dewar of Fruitland, Ont., who was for five years and until a year ago, entomologist for the Orange Free State and the Eastern Province, Cape Colony, consecutively. Amongst fruit insects Mr. Dewar spent more time on the Queensland fruit fly than on any other. He replied to our letter in part as follows: "I think that there is little danger of the fly being established in British Columbia. In warmer climates, it spells disaster to fruit growers, but I doubt if it would adapt itself to our climate. It infests nearly all cultivated fruits and many wild ones."

As Mr. Dewar states, it may be that the pest would not be able to exist in our climate. Nevertheless, the possibility remains. Vigilance on the part of our fruit pest inspectors and of our fruit growers, particularly in British Columbia, is necessary in order to be safe. We are not in the "war scare" business, but it is always best to "keep your powder dry."

ADVERTISE YOUR PRODUCTS

Growers of fruits and vegetables for local markets should advertise their goods. It is thought by most market gardeners, if they think about it at all, that advertising is an unnecessary and expensive luxury. This is not the case. Advertising means salesmanship and, as a result, increased business.

There is no reason why men who have fruits and vegetables for sale in a local market should not tell people about them through the home newspapers. The man who does this will step in advance of his neighbor. His produce will become better known and consumers will look for it and ask for it. Advertising is being done more and more each year by the leading growers in the United States, and they are unanimous in its favor. It can be made equally successful in Canada. Further suggestions will appear in our next issue. In the meantime, gardeners and fruit growers that have tried advertising, through the press or otherwise, are asked to tell others through THE CANADIAN HORTICULTURIST what they think of it. Advertising pays in all other lines of business. Why should it not pay in gardening?

PUBLISHERS' DESK

Our cover cut this month illustrates an evening view of the Penticton benches, British Columbia.

Do you want an index to Volume XXXII of THE CANADIAN HORTICULTURIST? The titles of leading articles and subjects dealt with during 1909 have been arranged alphabetically into convenient form for ready reference. This index is useful to all of our

readers that keep the copies of this magazine on file. Copies of it will be sent only to those persons that apply for them.

Communications from two or three sources have asked us what has become of our question and answer department. In the past four or five issues this department has not appeared chiefly because we considered that the space usually given to it could be used to better advantage by contributed matter. All questions that have been received have been answered by mail. It is not our intention, however, to eliminate this department. It will appear again probably in next issue. Questions on horticultural work and problems receive our best attention. Place them on separate sheets of paper and write plainly and briefly. Be sure and sign your name.

The Duty on Plants

At a meeting of the directors of the Ontario Horticultural Association held in Toronto early in February, the question of moving to have the Dominion government remove the duty on palms, ferns, rubber plants, gladioli, cannas, dahlias and peonies, was discussed. Messrs. T. W. Duggan, of the Dale Estate, and T. Manton of Eglinton, members of the Canadian Horticultural Association, had been invited to attend the meeting and were present. They were asked if the Canadian Horticultural Association would be willing to assist the Ontario Horticultural Association in petitioning for the removal of this duty.

Both Messrs. Duggan and Manton stated that they were personally in favor of having the duty removed, but claimed that they could not commit the Canadian Horticultural Association. They explained that the matter had been discussed frequently at the convention of their association, that the tariff had been framed as it now is largely through the action of the Canadian Association, although there was a strong feeling with many of the members that the duty should be removed. It was ultimately decided to allow the matter to stand over until the convention of the Canadian Horticultural Association in St. Catharines next summer, when representatives from the Ontario Horticultural Association will attend the convention and confer with the members of the Canadian Horticultural Association on these points.

Experience Necessary

W. J. L. Hamilton, South Salt Spring, B.C.

In the November issue of THE CANADIAN HORTICULTURIST I noticed a letter from Mr. Aitken of Peachland, B.C., together with a photograph of his peach orchard. I have many pleasant recollections of a visit paid to that locality, but even in that favored spot I did not find fruit growers entirely free from the difficulties which trouble us at times. In fact, I was called in as an expert to visit several orchards there, and diagnose their troubles, which I am glad to say I was able to successfully accomplish.

An amateur, if clever, can succeed well in fruit growing, but just as sickness is sure to come in a large family, so surely will trouble arise, sooner or later, in his orchard, when expert knowledge is necessary, first to diagnose the trouble, and next to treat it successfully.

I claim that farming, horticulture and above all the orchardist's work should be raised to the level of a profession; for, in no profession of the present day is higher education called for in many branches of natural science, besides general knowledge.

Protecting Trees 100 Years Ago

From Mr. C. C. James, Deputy Minister of Agriculture for Ontario, we received recently an interesting article entitled: "A Method of Preserving Fruit Trees in Blossom from the Effects of Frost." The article appeared in the *Upper Canada Gazette* of June 1, 1805. As a curiosity it was brought to the attention of Mr. James by Col. J. M. Delamere. The method is a novel one, but the principle is similar to that which underlies the modern practice, in some countries, of adding moisture to the atmosphere by means of sprinkling, spraying, irrigating or flooding ditches in order to raise the dew-point and thereby protect plants against frost. The article is as follows:

"The Chevalier de Borenberg of Prague, we are told, has discovered a method of effectually preserving trees in blossom from the fatal effects of those frosts which sometimes in the spring destroy the most promising hopes of a plentiful crop of fruit. This method is extremely simple. He surrounds the trunk of the tree in blossom with a wisp of straw or hemp. The end of this he sinks, by means of a stone tied to it, in a vessel of spring water, at a little distance from the tree; or the cord may be lengthened, so as to surround several, before its end is plunged into the water.

"It is necessary that the vessel is placed in an open situation and by no means shaded by the branches of neighboring trees, that the frost may produce all its effects on the water by means of the cord communicating with it. This precaution is particularly necessary for those trees the flowers of which appear nearly at the same time as the leaves which trees are particularly exposed to the ravages of the frost.

"The proofs of its efficacy, which he had an opportunity of observing in the spring of 1787, were remarkably striking. Seven apricot espaliers in his garden began to blossom in the month of March. Fearing that they would suffer from the late frosts, he surrounded them with cords as above directed. In effect, pretty sharp frosts took place six or eight nights. The apricot trees in the neighboring gardens were all frozen and none of them produced any fruit, whilst each of the Chevalier's produced fruit in abundance, which came to the greatest perfection."

Strawberry Culture

One of the most complete bulletins that we have received for some time on any subject is bulletin No. 62, recently issued from the Central Experimental Farm, Ottawa, on "Strawberry Culture." In this bulletin, Mr. W. T. Macoun, its author, chronicles the results of experiments conducted at the Central Experimental Farm for the past twenty-one years with strawberries. The records tell the behavior of the best 100 or more varieties of the 596 that have been tested there since 1887 and some descriptive notes are given about each of them. Experiments were made to determine the most productive varieties, the best early and the best late, those that have the firmest and largest and most attractive fruit and many similar points.

The bulletin covers the whole subject of strawberry culture from propagation and planting to harvesting. Selection of plants for planting, soil, cultivation, fertilizers, systems of growing, winter protection, renewing old plantations, irrigation, "ever-bearing" strawberries, and strawberries in cold storage, are many of the subjects treated. The bulletin also contains notes on habits and characteristics of strawberry insects and diseases and gives methods of control. Extracts from this bulletin will

appear in later issues of THE CANADIAN HORTICULTURIST.

The arrangement of sub-divisions and the general treatment of the whole subject is a relief from common works of this nature. It interests one from cover to cover and imparts information both new and old. Some excellent illustrations brighten the pages. This bulletin should be in the hands of all persons who are interested in strawberries. Copies may be secured on application to the Central Experimental Farm, Ottawa.

Shipping Peaches to England

Editor, THE CANADIAN HORTICULTURIST: As it might be of interest to many of your readers who are interested in fruit to learn of our experience in the exporting of some 90 boxes of Elberta peaches to nearly as many different addresses in Great Britain, we shall proceed to relate our methods and results.

In the first place, this was an experimental shipment for commercial purposes brought about by suggestions from some of our customers for whom we had already delivered apples in this manner in the old land and from our Mr. Edward Biggs of Maidenhead, England, the latter advising us to use a one-layer box. After obtaining our limited number of orders, and giving our usual guarantee to lay them down in good condition or return the money, we proceeded to choose a box with two compartments each sufficiently large to hold eighteen large peaches, and, after placing a nice pad of excelsior in the bottom and a layer of cotton batting next, we had our packers double wrap the peaches and pack them snugly together followed by the batting and the excelsior to finish. The wood cover was pretty stiff but did not allow of much pressure on the fruit.

As this was an experimental shipment, we did not go to the expense of dies for the box printing, using dressed lumber and stencils for printing so that the package would hardly have so neat an appearance; however, it answered the purpose intended.

Owing to disappointment in obtaining the peaches where they were promised us, we were forced to secure and pack these peaches under adverse circumstances so that they did not leave our packing house from 48, and some of them 72 hours after they were picked (much too long for tender fruits without cold storage). We then shipped them by the Fruit Express to Montreal where they were placed in cold storage on one of the Allan boats for Liverpool where upon their arrival, our agents quickly dispatched them to all parts of the United Kingdom.

We had previously issued a circular letter to all receivers of these peaches notifying them of their coming with the name of the friend that sent them as a present, also asking them particularly to let us know as to their condition upon arrival. We were amply repaid by this method. Especially are we indebted to our Trade Commissioner, Mr. W. A. MacKinnon of Birmingham to whom we sent a box for his criticism. It is a pity we do not avail ourselves more often of the advice and experience that these gentlemen who are on the spot are so willing to give regarding our methods of packing, packages and fruit.

It would take more space in your journal than you would care to allow to give verbatim the good things that some of the consumers said about these peaches, and, while we were pleased to hear them, we were more deeply concerned about the bad things some said. This interested us more than the other, because it affected our repu-

tation and finance; however, we made good for the peaches that were not good upon arrival and our reputation was sustained.

Now for the lesson that was taught by our experience (which coincided with the advice we received from several) this was that if we desire to lay down this fruit in the best condition for commercial purposes at a distance we must be most careful of the handling here. This may be summed up in few words: viz., proper maturity of the finest specimens before picking, padded baskets, one layer only in basket, picked more by the palm of the hand, avoid bruising in every possible manner, and when packing in your box see that every peach is entirely separated, in fact, nested by itself. This fruit should be pre-cooled before shipping and by all means use every effort to get fast transit to the market. Now, regarding the cold storage on boats, I believe the ocean carrying companies are anxious to obtain this class of business and are using every effort to give a good service. I have found it so.—The Biggs Fruit and Produce Co., Burlington, Ont., Alex. C. Biggs, Manager.

Concentrated Lime-Sulphur

(Continued from page 53)

The sediment is of apparently no value as a spray material against insects (as indicated by the work of Parrott at the Geneva New York Station), hence its volume and removal, especially in the commercial preparations, becomes matters of importance. It is composed largely of sulfites and sulfates of calcium, together with the magnesium, iron, aluminum and other insoluble impurities in the lime and sulphur used. Its volume is affected chiefly by the ratio of lime and sulphur; the purity of materials and the time of boiling. Its relative volume also naturally increases with the density of

the product. Made as described above its actual volume apparently runs from five per cent. to nine per cent. of the total product.

In the home preparation, the difficulty of its economic removal and its fineness and apparent lack of objectionable mechanical qualities, except in displacing valuable materials, have led us to disregard it. If desired, however, it may be removed by letting the product settle for about a day, drawing off the clear portion and straining the remainder through a moderately fine cloth inside the strainer. The sludge may then be washed free of any further valuable materials in the manner stated above.

PRESERVATION OF LIME-SULPHUR

If properly handled, lime-sulphur preparations apparently can be preserved indefinitely. Ordinary changes in temperature have little effect on them. But they are very sensitive to a number of other influences. Continued exposure to air, for example, results in the development of a crust of solids of varying thickness. This is prevented by cutting off the exposure to air, either by an oil covering or by immediate storage in tight closed vessels, filling them completely. When the crust does develop it can be skimmed off with a fine screen and readily redissolved by heating either in water or in the concentrate itself.

These solutions are also decomposed by a number of other things. Acids, carbon dioxide, certain arsenicals, and even extra lime put in as a marker, all appear more or less rapidly to break down the lime-sulphur combination. This is by no means always fatal in practical results, but we believe it is to be avoided when possible. Most of them can be avoided by elimination.

In the case of arsenicals, however, their addition is necessary if the material is to be

used as a summer fungicide. The addition of arsenate of lead results in very rapid decomposition, both for itself and the lime-sulphur. The resulting compounds seem to give good results practically, however, so that we cannot entirely condemn the process just at present. But it seems to be a very wasteful process, especially when we can obtain the same poisoning power in another arsenical, the arsenite of lime, for about one-sixth the cost. The latter arsenical also is practically stable in the lime-sulphur solution. It has been in use to a greater or less extent for a long time in connection with other fungicides, but has been limited by a tendency to burn foliage. This is practically avoided by making it up with a slight modification of the Kedzie formula, the method being described in the afore-mentioned bulletin of the Pennsylvania station. The use of Paris green in this solution, we believe to be undesirable, with nothing to commend it.

THE PROCESS OF DILUTION

In the application of any concentrate either home-made or commercial, it is essential that a definite method of dilution be followed. Two solutions may look exactly alike and yet differ widely in density, so that any accurate method must be based primarily on the density of the concentrate that is being diluted. Moreover, we believe that recommendations based on the density of diluted spray are preferable to those based on the number of dilutions even when accompanied by a statement of the concentrate's density.

Accurate dilution is very simple and easily accomplished with the aid of a hydrometer having the specific gravity scale. (Such an instrument, fitted with the Baume scale also, may be obtained from Bausch & Lomb, Rochester, N. Y., or

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Everywhere there are persons who are satisfied with nothing but the best. When they place their stamp of approval on any line of goods by purchasing them, you know they have investigated their merits and that they meet with their approval. Their example is a good one to follow.



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from the firms mentioned in our bulletin 92. The presence of foreign materials or of much roily sediment in the sample will vitiate the test, a fact which must be taken into consideration—the former especially in solutions of unknown preparation). Sprays of any desired density may be obtained from any concentrate by simply getting the reading of the concentrate and dividing the decimal of this reading by the decimal of the spray desired. For example, if the reading of the concentrate is 1.27 (about 31 degrees Baume), to get a spray of 1.03 density we divide the .27 by .03 and obtain 9, which is the number of dilutions required, and which of course is obtained by adding eight volumes of water. In this we are simply applying the general fact that the densities of solutions heavier than water vary inversely with the number of dilutions.

The workings of the process may be seen further in the following:

(a) To determine number of dilutions.

Formula: $\frac{\text{Decimal of Concentrate}}{\text{Decimal of Spray desired}} = \text{No. of Dilutions}$

Examples: $\frac{.24}{.03} = 8$, or $\frac{.25}{.01} = 25$
 $\frac{.30}{.03} = 10$, or $\frac{.30}{.005} = 60$

(b) To determine the density of spray used.

Formula: $\frac{\text{Decimal of Concentrate}}{\text{No. of Dilutions}} = \text{Decimal of Spray}$

Examples: $\frac{.26}{10} = .026$ ∴ Spray = 1.026
 $\frac{.27}{50} = .0054$ ∴ Spray = 1.0054

This method gives final sprays of definite density, and the importance of this is obvious when we consider the relatively small

margins between safe and unsafe densities in the use of these solutions on foliage.

With Baume hydrometers, the dilutions are obtained indirectly either by conversion into the Specific Gravity scale or by means of a special dilution table. In the latter case, however, a table is likely to be needed for each density of spray desired. The following table gives the uses of the lime-sulphur spray, as far as our present knowledge extends:

Times and Strengths of Sprays for Various Purposes

INSECT OR DISEASE	SPRAYING TIMES	DENSITIES OF SPRAY
San Jose Scale,	Trees dormant, but best in fall or spring.	1.03 for regular annual control.
Oyster-shell Scale,	At hatching time.	1.04 in bad cases, especially on old apple trees.
Blister-mite,	Just before buds open.	1.02.
Plant lice eggs,		1.03 to 1.04. Latter strength for aphids eggs. (Colo. Bul. 133:27).
Peach leaf curl,		
Apple and pear scab,	(1) Blossoms beginning to show pink.	1.01; may be varied by .002 or more either way as results direct.
Apple worm, add arsenical in 2 and 3,	(2) Within a week after petals fall.	
	(3) About three weeks later.	
Cherry leaf spot,	Three sprayings, a month apart, beginning with signs of infection.	1.01, or slightly weaker.
Peach scab and brown rot of stone fruits,	(1) Three or four weeks after petals fall.	1.003 to 1.005; may be varied .001 either way as results direct.
(Experimental as yet),	(2) Half-way between (1) and (3).	On peaches and plums, limited trials only, testing effect on foliage by applying to a few trees several days before regular applications.
	(3) Two weeks before fruit ripens.	

While it is believed that the densities recommended in this table will generally prove efficient and safe where pure solutions are used, yet occasional injury has occurred from third and fourth applications when the earlier applications of the same strength of spray had proved entirely safe. Also the abundance of the application may

frequently affect the amount of foliage-injury nearly as much as the density of spray applied. (The presence of salt in some of the commercial preparations, as indicated in the work of the Geneva, N.Y., Station, makes special caution desirable in using them upon foliage.)

ADVANTAGES OF HOME-MADE CONCENTRATE

As compared with our other leading sprays the advantages of the storable, home-made lime-sulphur are conspicuous. In total cost,

including the making, it will produce a 1.03 scale spray for about three-fourths of a cent or less per gallon, while the commercial preparations usually cost two cents or more. The known absence of superfluous and possibly harmful ingredients is also of some importance. For apple scab, it does not "russet" the fruit; it can be made up be-

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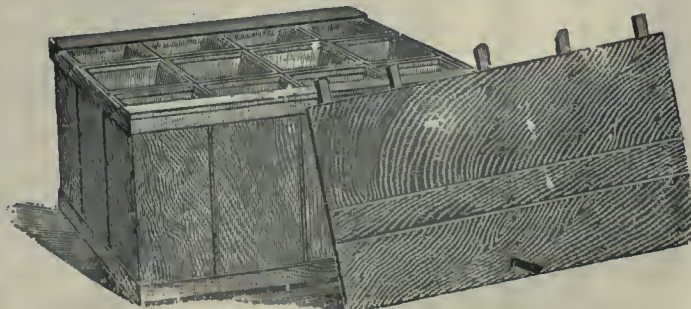
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fore hand; and in proper strengths costs about a quarter of a cent per gallon. Bordeaux (4-4-40), on the other hand, russets fruit; is not storable; and costs about half a cent per gallon.

Lime-Sulphur vs. Bordeaux

(Continued from page 55)

Summing up these points, then, we find that Paris green should not be used with commercial lime-sulphur and that, while arsenate of lead may be used, the chemical changes that take place make it no better than arsenite of lime, which is very much cheaper and should therefore be used. In a word there cannot be the same freedom in adding arsenicals to lime-sulphur that there is in adding them to Bordeaux, but in arsenite of lime we have a good cheap arsenical that may be safely combined.

THE COST

There is still one more point to take into consideration; namely, the comparative cost of the lime-sulphur mixture and of Bordeaux. If the materials used are bought in large quantities, they can be obtained at the following prices: Sulphur, \$1.50 a hundred-weight; or one and one half cents a pound; lime, twenty-five cents a bushel of about sixty pounds; bluestone (copper sulphate), five cents a pound.

At these figures one barrel of the self-boiled lime-sulphur of the strength of ten pounds of lime and ten pounds of sulphur to forty gallons of water will cost: Lime, five cents; sulphur, fifteen cents; fuel used to boil the water required for slaking the lime, about two cents; total, twenty-two cents.

One barrel of Bordeaux, 4.4.40 formula, will cost: Lime, two cents; bluestone, twenty cents; total twenty-two cents. The Vanco

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brand of commercial lime-sulphur costs \$8 a barrel or about twenty cents a gallon. If we use it at the strength of one gallon to thirty gallons of water, which is probably as strong as the foliage will stand, it will cost approximately twenty-seven cents a barrel of diluted spray.

From these figures we see that the difference in cost is very little, the commercial wash being five cents a barrel dearer but requiring much less labor to prepare it.

LIME-SULPHUR FOR SCALE INSECTS

One other point should be mentioned before closing: The lime-sulphur washes have considerable value, much more than Bordeaux, as insecticides in destroying the newly hatched San Jose and oyster-shell scales. A thorough application of the commercial wash last summer just after the oyster-shell scale eggs had hatched killed a very large percentage of them and therefore added to the merits of the wash.

WHICH ARE WE TO USE?

In conclusion, the question comes up: Which are we to use for a summer spray, lime-sulphur or Bordeaux? Each man will have to answer this question for himself now that he has heard the pros and cons. If his orchard is infested with San Jose scale or if he has not got the oyster-shell scale under control, I should advise him to use the lime-sulphur wash, preferably the commercial form; if these insects have not to be combatted, he might experiment with this wash on a few rows but should not be in a hurry to give up Bordeaux, as the latter is on the whole slightly the better fungicide.

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Horticultural Societies' Grant

The directors of the Ontario Horticultural Association met in Toronto early last month and waited on Hon. J. S. Duff, Provincial Minister of Agriculture, and asked that an increase in the grant to horticultural societies of \$8,000 be made. It was pointed out that owing to the largely increased expenditures, that were the government grant increased by \$5,000 the grant per member would be only about the same as it has been in the past. As the societies are growing rapidly in membership, it was felt, therefore, that the grant should be increased by at least \$8,000 to provide for the future growth of the societies.

The members of the deputation included Messrs. R. B. Whyte, the president, of Ottawa; Rev. A. H. Scott, Perth; J. P. Jaffrey, Galt; J. Lockie Wilson, Toronto; F. B. Bowden, Vankleek Hill; J. O. McCulloch, Hamilton; G. W. Tebbs, Hespeler; H. J. McKay, Windsor; W. B. Burgoyne, St. Catharines, and Prof. H. L. Hutt, Guelph. The subject was introduced by Mr. Whyte. Others who spoke were Messrs. Rev. Scott, J. P. Jaffrey, W. B. Burgoyne and H. B. Cowan. Rev. Mr. Scott went into the subject at some length, having prepared a statement with great care showing the absolute necessity that exists for the increase in the grant. Mr. Jaffrey pointed out that some years ago when Canadians were leaving Canada for the United States they used

to deery Ontario towns and villages as being slow and behind the times. He had lived in the United States for some years and had heard many do this. Of late years, since the horticultural societies have been improving the appearance of the municipalities in which they exist, many Canadians, when they returned home, were proud of the appearance of their home towns and now boast of their places. Now that the government is trying to induce immigration to the province, it should do everything it could to assist horticultural societies to improve the attractiveness of their respective municipalities.

Mr. Burgoyne showed that whereas the membership of the horticultural societies in 1906 was 6,367, it had increased in 1909 to over 9,000. Owing to this increase, where the government grant in 1906 to every society, was equal to 37 cents for each member, it had decreased in 1909 to 26 2-3 cents a member. In the same way, where the expenditures of the societies in 1906 were \$14,863, they had increased to about \$24,000 in 1909. Thus, whereas the government formerly gave 32 cents to a society for every dollar they expended, it is now giving only about 20 cents. Mr. Burgoyne contended that the time had arrived when the grant to the societies was not sufficient and it had become a burden to the society to conduct their operations successfully.

Hon. Mr. Duff, who said he was in a hurry, did not give the deputation as much

encouragement as they felt the importance of their question justified. In order that the government might see that there is a general demand throughout the province for this increased grant, it was later decided to telegraph the presidents of all the horticultural societies in the province urging them to telegraph their members in the legislature asking them to interview the members of the cabinet and urge them to give the increased grant. It was felt that if the various societies would do this, it would do more to show the government the necessity that exists for this increased grant than anything almost that could be done.

San Jose Scale in Ontario

R. H. Lewis, Provincial Inspector, Hamilton

San Jose scale in this province is spreading. In most municipalities which I have visited, during the past year I have found more or less scale.

What surprises me is to find such townships as South Grantham and Niagara, all in the peach belt, not having local inspectors to inspect the orchards where trees are badly infested with scale. There are about 10 municipalities that have local inspectors and all are doing good work. In North Grimsby and Saltfleet townships excellent work is being done by the inspectors and the grovers are holding the scale in check by thorough spraying.

Leamington has taken up spraying so extensively that the coming spring a large number of peach trees are going to be planted. Now that the growers can buy the lime and sulphur prepared, I expect to see greater advancement in the way of general spraying of peach orchards this coming spring. Apple orchards in this locality are nearly a total ruin by the scale.

The department of agriculture is doing everything that possibly can be done. All stock in the nurseries is inspected during August and September by inspectors sent by the department. Every tree is carefully looked over, and when found with scale the trees are broken down and the nurseryman notified to take out and burn.

I have visited a number of the nurseries during the past season and found the nurserymen doing all that is possible to keep the stock free from scale. The nurserymen have a good deal to fight against. Surrounding most of our nurseries are old apple orchards and line fences with all kinds of trees growing, which are infested badly with scale and affording breeding spots for it.

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A new subscriber in Oxford Co., Ont., writes as follows: "I have just seen a copy of THE CANADIAN HORTICULTURIST at a friend's home and enjoyed reading it. It is the first copy of the paper that I had seen. Enclosed find a two years' subscription." Take the hint. Show your copy of THE CANADIAN HORTICULTURIST to your friends.

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NOTES FROM THE PROVINCES

Kootenay Valley, B. C.

(Daily News, Nelson)

A branch of agriculture that will no doubt be taken up in the future in the Kootenays is the raising of cranberries. This fruit requires water in abundance, the plantations requiring to be periodically flooded. The Kootenay flats, at the eastern end of Kootenay lake, present the

ideal physical conditions and the ideal climate. The great slough that now produces nothing may become a vast producer of this fruit, that is always in demand and extremely easy to market in good condition.

Wild cranberries are to be met with in many parts of the Kootenay in great luxuriance. The high bush cranberry is famous for the quality of jam that house-

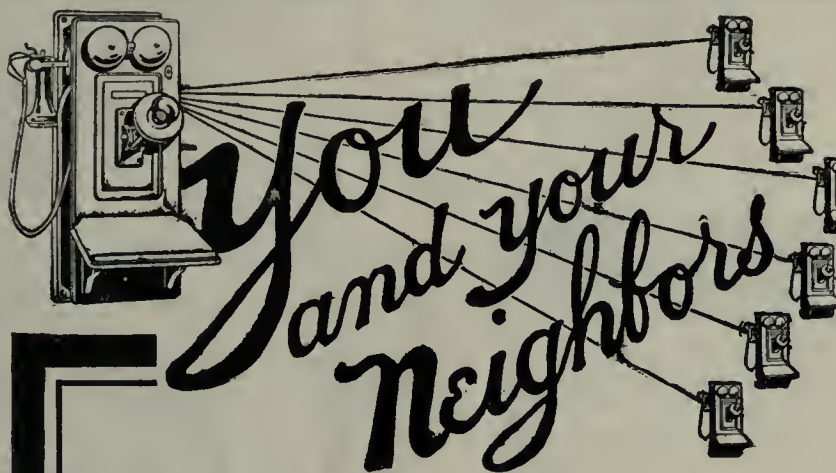
wives make from it. It is prevalent at Crawford Bay and along the Duncan river, and in the Lardo country and in many other districts.

The cranberry requires special conditions and brings rich returns from swamps and wet land that will produce nothing else. Its culture should be taken up.

Ontario vs. British Columbia

A. B. Clarke, Toronto

In old Ontario, the general farmer who owns an orchard is scarcely interested in it. He is not a fruit grower in a business sense and, for the benefit of the fruit industry, should have his orchard demolished or be made to grow good fruit. One or the other



THE SATISFACTION OF SATISFACTORY TELEPHONE SERVICE

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No. 1317 the severest tests of which he knows.

Take it up point by point. There is the transmitter, for instance, the same, standard, long-distance type that is used on all standard long-distance 'phones. The general manager of the biggest telephone company in the world could have no better on the private 'phone he uses on his own desk. There is no better made. And not only is ours the best transmitter, but it is also cheapest in point of maintenance; it requires less battery current than any transmitter on the market—as little as 1-7 of some of the others.

Then the receiver on No. 1317 is worthy of attention. Here the magnets demand consideration; made from a special grade

of steel, they are permanent, retain their full strength indefinitely. And the bell pieces are made of special annealed Norway iron. This receiver is so constructed that dust cannot accumulate on the back of the diaphragm nor can local noises disturb the listener and spoil transmission. Each part of the receiver on No. 1317 is the result of long and careful study—throughout, it is the best combination possible. Or look at the switch-hook—note how compact and self-contained it is,—how all contact springs are vertically mounted as to afford no resting place for dust and other accumulations. Our standard self-contained switch-hook is equipped with platinum points—you can understand the efficiency for which that makes. And so it goes—through our No. 1317 every part is the best and most perfect it is possible to devise. Never before has it been possible for any manufacturer—no, not even for us—to offer such an instrument to the Canadian farmer.



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method would benefit both himself and others.

The greater superiority of Ontario fruit in regard to flavor over that of British Columbia gives it preference among consumers; even in the latter province of British Columbia, it would receive favor if only the appearance and condition were equal to that of the home-grown fruit. I have heard this admitted by a British Columbia fruit rancher who grows apples as his business—apples to sell and he sells them on their appearance. In British Columbia, one cannot buy a really poor apple. They all have a good appearance and the fruit rancher, finding that the buyers will not take poor looking apples, has cut them out altogether.

Compare this state of affairs with Ontario, especially in the case of small towns and small fruit stores in a city like Toronto. In the former, you can go to the open market on a Saturday and buy the smallest, poorest and most pest-ridden apples that it is possible to pick. Most of these are purchased by housewives who say: "Well, I can make jelly of them." Why shouldn't she

make jelly out of good apples that have no waste? "Fewer and Better" should be thought of by the farmer in taking his apples to market.

One of the reasons for British Columbia's advanced position in the fruit industry, is the fact that her people are, to a great extent, new to the business. She has a mixed population with varied ideas and all are willing to accept advice from one another and to follow the best; i.e., the advice which helps in the making of the most cash out of their business.

Manitoba

R. J. N. Jamieson

I have sold a great deal of various kinds of nursery stock in the Swan River Valley, which I believe is one of the most favorable districts in Manitoba for fruit growing, on account of its sheltered location. I am sorry to say, however, that only a very small percentage of the purchasers were successful with the stock. The reason of this was not so much the fault of the nursery stock nor the climate as it was the negli-

gence of the settlers to protect the young trees from vermin during the winter months and from live stock in the summer and fall.

With regard to the varieties of fruit which proved most successful in this district, I found the Transcendent, Whitney and Hyslop crab apple survive the winter and make rapid growth during the summer, and some trees that I know bore fruit to the amount of one pail the fourth season. Almost any variety of currants will do well in Manitoba. With raspberries, I found that the black caps can be grown with success if protected during the winter. Many varieties of the red berries will survive the winter and do well.

Almost any variety of crab apple, currant, gooseberry, raspberry and strawberry can be cultivated and grown. The eastern grown stock in the small fruit lines will do but if we want to make a success of growing standard apples, cherries or plums, we will have to deal with Manitoba nurseries.

I will mention two varieties of cherry and



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Seed Drills and Cultivators

The only Rear-Wheel Driven Seed Drill on the market. The feed in the "Bacon" handles seed without bruising or breaking, and seeds evenly to the last seed. Machine instantly converted from a regular seed sower into a hill dropper. Feed Cut prevents waste of seed when turning rows.

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THE EUREKA PLANTER CO. Limited
Woodstock, Ont. 2

two of plum which I have tested myself and found perfectly hardy, coming through the winter unprotected and leafing out to the very tips. These are the Cheney and the De Soto plum, the Compass and the English Morello cherry. They were purchased from a Manitoba nursery.

British Columbia

At the 20th convention of the British Columbia Fruit Growers' Association held at Victoria, early last month, the secretary in his report, stated that the loss of trees during the late severe winter had not been serious on the whole, averaging for the province some six per cent. The chief losses were in the irrigation districts and were largely due to injudicious irrigation, and, in East Kootenay to the planting of unsuitable varieties. In the executive committee's report it was stated that since spraying materials were now manufactured in the province, they would no longer be handled by the association.

President Puckle, in his address, pointed out the need for a re-organization in the association so that it would become of greater general benefit to the province. Besides discontinuing the supplying of spraying materials, much of the dissemination of

knowledge would be left in hands of the provincial board of horticulture, and the association should confine its work to other lines. Something should be done also to increase attendance at the annual meetings.

The president, on behalf of the association, presented the late minister of agriculture, Capt. Tatlow, with a handsome case of cutlery, and the secretary, presented him with a gold-headed cane; both in recognition of Capt. Tatlow's work during his connection with the department.

In acknowledging these tokens of esteem, Capt. Tatlow said that he had been fortunate in holding office at a time when the re-organizing of the department of agriculture had become imperative, owing to the growth of the province, and that, in consequence, the separation of horticulture from dairying had been effected, and they thought it had been better to get men from the east, from college, to manage these departments, but that, in future, it would be well to educate young men from the province by giving grants to aid in their education in these lines at an eastern college, so that, by this means a staff could be collected for a provincial agricultural college, which would come in the near future.

Preceding the election of officers for the

coming year, Mr. W. E. Scott, the deputy minister for agriculture, took the chair, and made some remarks on the following lines: That something must be wrong with the association, as evidenced by its small attendance, and that in future it would have to come under the fostering wing of the department of agriculture, since it appeared we could not market the fruit, fine as it is. He made several suggestions as to how the association could work to better advantage, amongst which were:

1. Providing judges for local fairs.
2. The collection and selection of fruits for exhibition purposes.
3. Collection of crop reports to learn quality and quantity available.
4. Compiling a list of shippers both individuals and associations.
5. Compiling lists of prices and also of best places to obtain supplies.
6. Holding annual conventions, care being taken to secure letter attendance at them.

The election of officers was then proceeded with and resulted as follows: Pres., Mr. Puckle; 1st vice-pres., J. Johnston, Kootenay; 2nd, 3rd and 4th vice-presidents, Messrs. Brown, Shaw and Wilson; sec-treas., W. J. Brandrith, Ladner.

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PAY AFTER IT HAS PAID
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LET US SEND YOU ANY OF THESE SPRAYERS—to try for 10 days, then if you buy, you can pay us cash or we'll wait till you sell your crop, then you can pay us out of the "extra profit." We pay freight. Wholesale dealers' prices.



Man-Power Potato & Orchard Sprayer.

Sprays "anything"—potatoes or truck, 4 rows at a time. Also first-class tree sprayer. Vapor spray prevents blight, bugs, scab and rot from cutting your crop in half. High pressure from big wheel. Pushes easy. Spray arms adjust to any width or height of row. Cheap in price, light, strong and durable. **GUARANTEED FOR 5 FULL YEARS.** Needs't send-a-cent to get it "on trial." You can get one free if you are first in your locality. Write now.



Horse-Power Potato & Orchard Sprayer.

For big growers. Most powerful machine made. 60 to 100 gallon tank for one or two horses. Steel axle. One-piece-heavy-angle-iron frame, cypress wood tank with adjustable round iron hoops. Metal wheels. "Adjustable" spray arms and nozzles. Brass ball-valves, plunger, strainer, etc. Big pump gives vapor spray. **Warranted for 5 years.** Try this machine at our expense with "your money in your pocket." See free offer below. Write today.



Fitz-All Barrel Sprayer.

Fits any barrel or tank. High pressure, perfect agitation, easy to operate. Brass ball-valves, plunger, strainer, etc. Automatic strainer. No "cup leathers or rubber" about any of our sprayers. Furnished plain, mount on barrel, or on wheels as shown. A year guarantee. It don't cost you "a cent" to try it in your orchard. Get one free. See below. Write today.

FREE—Get a sprayer FREE.—After you have tried the sprayer and are satisfied that it is just as we recommend it, send us a list of the names of your neighbors and we will write them and quote them price and have them call and see your machine work, and for every Fitz-ALL Sprayer we sell from your list we will credit you with \$2.00 or send you check if you have paid cash.
For every Man-Power Potato & Orchard Sprayer we sell we will credit you with \$3.50 or send check.
For every Horse-Power Potato & Orchard Sprayer we sell we will credit you \$5.50 or send check.
We do all corresponding and selling. All you need do is show the sprayer. Many have paid for their sprayers in this way. This offer is good for only the first order in each locality. Don't delay. Send the coupon or post card NOW.
Ontario Seed Company, Ltd., 138 King St., Waterloo, Ont.

COUPON—Fill out and send today. This Coupon will not appear again.
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Every detail that adds to musical, structural and artistic perfection, are embodied in these masterly models.

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We will also tell you about our new plan of buying New Scale Williams Pianos on easy payments.

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OUTLOOK FOR THE INDUSTRY

Mr. Winslow, of the horticultural branch of the department of agriculture, spoke on the development of the association on new lines and said that the department intended to collaborate with the fruit growers in handling the output of the fruit. He anticipates strong competition for British Columbia fruit in the future, Oregon being a dangerous rival, as their expert methods will contrast with our lack of organization, especially as many new and inexperienced fruit growers in our province, will, for the first time, be placing their fruit on the market. This he said emphasized the need of collaboration.

Mr. Metcalf, who watched the markets for us last year in the prairie provinces, said that what we want is more fruit and better fruit. There were three alternative methods for handling our fruit in these provinces: 1, utilizing the existing wholesale houses; 2, establishing our own; and 3, by co-operative associations. Much discussion had been raised about the taking over of the management of the association by the department of agriculture, and Mr. Scott stated that arrangements had been made for a big meeting of the representative fruit growers of the province at Kamloops next April, when the association's affairs could be discussed.

MISCELLANEOUS

An excellent address on "The Marketing of Fruit" was given by Mr. Rutlee, a wholesale fruit dealer of Winnipeg. Mr. W. E. Scott gave an account of his recent experiences in England in care of the British Columbia fruit exhibited there. These addresses will be reported at length in a later issue of THE CANADIAN HORTICULTURIST.—W.J.L.H.

Montreal

E. H. Wartmao, Dominion Fruit Inspector

In the interests of the fruit trade I have visited all the towns in eastern Ontario. I find the stock of winter apples in these places in limited quantities on account of local apples being in fair quantities and the price of export pack high. I find fruiterers asking from \$4 to \$5 a barrel for best brands of Spy, Baldwin and Golden Russet. At this price, only the few can buy freely. The majority are well satisfied with their fruit. Several complained of apples being damaged by hard pressing, especially the Spys that they had put away for long keeping.

I am glad to know that the packers in Ontario I have been visiting lately are waking up to the fact that they are injuring the fruit by hard racking and filling barrels too full. The best lesson they have got lately is when a purchaser comes to inspect a lot from the pressed end and says: "I cannot buy your pack on account of the damage you have done by overpressing."

Many, after racking well, only fill their

McDonald's
TESTED SEEDS
TRUE-VIGOROUS-RELIABLE

Have Produced the Finest Crops for the past thirty years.

If you grow crops of any kind or description, a request by mail will bring you our handsomely illustrated catalogue.

Write at once. Do it right now. May mean dollars in harvest.

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A HOUSE, BARN GREENHOUSE or SILO?

Send us your List of Rough or Dressed Lumber, Lath, Doors, Sash or anything you may require in Woodwork for Building Construction and we will quote you promptly.

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Originators **Salimene**. (Lime-Sulphur Solution) 1-100. At it fourteen years. An insecticide and fungicide. Better than Bordeaux Mixture.

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(Arsenate of Lead and Salimene)
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Agents Wanted

Monmouth Chemical Co.,
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THEY ARE THE BEST ON THE MARKET



WE MANUFACTURE
STANDARD POTS
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HANGING BASKETS
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STRAIGHT PANS

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The FOSTER POTTERY CO., Limited

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DAHLIAS

The Finest

CACTUS DECORATIVE
SHOW FANCY
POMPON SINGLE

GLADIOLI—The best named.
Nancieanus, Kelways and Mixed.
Also Iria.

H. P. VAN WAGNER STONEY CREEK
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you will want a "CHAMPION" Washing Machine right off. The Momentum Balance Wheel, which almost runs itself—the up-and-down stroke of the Lever, which means greatest power with less effort—the absolute perfection of the "CHAMPION"—will make you want one for your home.

"Favorite" Churn gets all the butter out of the cream. Easy to churn, too. If your dealer does not handle these home necessities, write us.

DAVID MAXWELL & SONS, - ST. MARY'S, ONT.



Ask The Housewife

She will tell you that Windsor Salt does not get "lumpy"—nor "cake" in glass or silver.

In homes of refinement,

Windsor Table Salt

*has long been the universal
favorite for table and
culinary use.*

17

barrels level full and they have carried to England with few slacks. This is a wise conclusion. Many have tailed apples an inch higher and in case of fine Spys when opened at faced end, found them beautiful, but when they got to other end of the barrel found half a bushel rotten. This is rather discouraging to the one who has paid from \$4.50 to \$5 for same.

Annapolis Valley East, N. S.

Eunice Watts, A.R.H.S.

At a meeting of the Waterville Fruit Co., Ltd., it was decided to continue the company and build a warehouse and the members agreed to co-operate in buying fertilizers. This company also intends to combine with other companies in the valley so that they can charter boats thus getting their fruit more cheaply into England.

After the business meeting, Mr. L. D. Robinson gave an interesting address which covered a number of subjects including the subjects of cultivation, fertilization, pruning, spraying and thinning orchard trees, and the value of humus and lime in the soil.

In the discussions that followed it was concluded that orchardists must now spray at least four times in order to combat the disease called the sooty or fly-speck fungus which develops on Greenings, Spys, Baldwins and other apples after the third spraying. It was estimated that during last season in Nova Scotia thousands of dollars worth of damage had been done to apples by this fungus. Apples which were apparently free from blemish when barrelled arrived at their destination in a very spotted condition, proving that the disease developed still more after gathering. The merits of a lime and sulphur wash were discussed, and although this mixture has been used as a fungicide in other fruit centres, Nova Scotia at present is only experimenting with it.

On Feb. 15, a fruit growers' meeting was held in Berwick, when Mr. B. H. Lee discussed "Some Mistaken Ideas in Raising Fruit," in which he referred to mistakes in mixing varieties when planting, mistakes in fertilization, pruning, wrong varieties, and marketing. Mss Eunice Watts gave a paper on "Beneficial Insects in Orchards," mentioning bees, wasps, ichneumon flies and various beneficial beetles.

Prince Edward Island

J. A. Moore

The Co-operative Fruit Co., have packed a lot of Ben Davis apples for shipment to the British market. They had the growers take their apples to Charlottetown in barrels and boxes and there had them repacked in the company's barrels properly graded.

It is said that a very high standard has been set. One man told me he took in five barrels of what he thought were No. 1 ap-

Royal Botanic Gardens KEW, ENGLAND

Office of the Curator,
Kew, September 13th, 1909

Mr. H. H. Groff,
Simcoe, Ontario, Canada

Dear Sir:—

Your Gladioli have been and are still very much admired here. The Yellows and Blues are exceptionally good, and the named varieties, BLUE JAY, DAWN, LA LUNA, and PEACE, are superb.

W. WATSON, Curator,

CAMPBELL BROS., Simcoe, Ont.

APHINE

The New Insecticide Discovery which Kills Plant Lice of Every Species

"There was a demonstration of the efficiency of this new destroyer of insect pests on Saturday last at the new seed store of the H. F. Michell Co., Philadelphia. Growers had been invited to bring plants of all kinds that were infested and see the various "critters" put away in a jiffy, which prediction was certainly carried out. Martin C. Ebél, the treasurer of the Aphine Co., was the demonstrator, and showed how very easy it was to apply the insecticide. It is not an oily, sticky, or bad smelling solution, and when applied does not require washing off, except that a good hosing the next day will remove all insects, from which all life appear to be taken with one application. In this demonstration one plant in particular, a ficus, was badly affected with the long Belgian scale and mealy bug. The Belgian black scale is said to be one of the toughest of the family, but in less than half an hour after the application the insects were easily removed by wiping, and a good stream from the hose would have cleared the leaves effectually. We congratulate the Aphine Co. on the apparent success of their solution as seen here, for if the results attained in this test will work out practically on a large place, the cost of growing plants will be materially reduced, and growers will have to find some other 'rainy day' job than gunning for bugs." — "The American Florist," Feb. 19, 1910.

"Collier's Weekly" says "Aphine has a future as wide and long as the United States."

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Abounding in stimulating goodness, a most healthful and pleasing beverage. Its sustaining and invigorating qualities are beyond dispute.

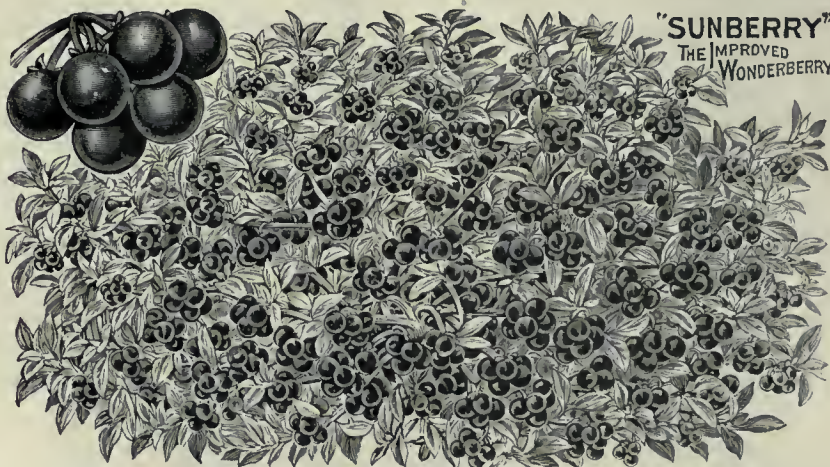
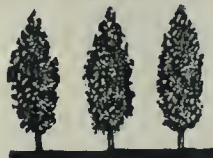
THE CENTRAL NURSERIES



At the foot as usual with a well assorted stock of Apple, Pear, Plum, Cherry, Peach, and Ornamental Trees, Shrubs, Roses, Small Fruit Plants, Evergreens, etc. All well grown and reliable. Carefully handled; well packed and O. K. We ship direct from nurseries to planters. For satisfaction, get our prices by mail before placing your orders, it will pay. Established 30 years. Write us,—

FREE PRICED CATALOGUE TO PURCHASERS

A. G. HULL & SON, ST. CATHARINES, ONT.



SUNBERRY—THE IMPROVED WONDERBERRY

LUTHER BURBANK'S GREATEST CREATION. A Luscious Berry Ripening in Three Months From Seed
SEED 20 CTS. PER PKT. 3 PKTS. FOR 50 CTS. POSTPAID.

This is positively the GREATEST new Fruit and the best NOVELTY of modern times. These are facts which no one can get away from. The proofs are overwhelming in number and conclusive in character. Grown last year by 350,000 people.

Fruit blue-black like an enormous rich blueberry in looks and taste. Unsurpassed for eating raw, cooked, canned or preserved in any form. This great garden fruit is equally valuable in hot, dry, cold or wet climates. Easiest plant in the world to grow, succeeding anywhere and yielding great masses of rich fruit all summer and fall. The greatest boon to the family garden ever known. Leaves and branches are also used for greens and are superb. Everybody can and will grow it. Luther Burbank of California, the world famous plant wizard, originated the Wonderberry and turned it over to me to introduce. He says of it: "This absolutely new berry plant is of great interest and value as it bears the most delicious, wholesome and healthful berries in utmost profusion and always comes true from seed."

READ my Catalogue for full description, culture, uses, etc. Also scores of testimonials from well-known and reputable people all over the country. Read the "Crime of the Wonderberry."

THE SUNBERRY is an improved form of the Wonderberry which proved so satisfactory last year. It is greatly superior to the original type, and I alone have genuine seed.
SEED 20c. per pkt.; 3 pkts. for 50c.; 7 for \$1.00. Agents Wanted, \$2,000 in cash offers.

With every packet of seed I send a booklet giving 99 Receipts for using the fruit, raw, cooked, canned, preserved, jellyed, spiced, pickled, jams, syrups, greens, etc. It is superior for any of these uses. Also a copy of my 152-page Catalogue with every order.
MY GREAT CATALOGUE of Flowers and Vegetable Seed, Bulbs, Plants and Rare and New Fruits FREE to all who apply. 152 pages, 500 illustrations, and colored plates. I have been in business 35 years and have half a million customers all over the country. Complete satisfaction guaranteed to everyone. Do not fail to see the many great Novelties I am offering this year of which the SUNBERRY is the greatest ever known. Address,

JOHN LEWIS CHILDS, Floral Park, N. Y.

P. S. This offer will not appear again. Write for Sunberry seed, and Catalogue at once.

ples and took home three barrels which the packers rejected. A neighbor of mine, Mr. A. M. McRae, is sending along with the others some barrels of his own packing in his own name as the company will not put their stamp on anything that they do not pack themselves. We await with interest the outcome of this venture. If we can sell Ben Davis to advantage in the British market then our fortunes are assured; for we can grow this variety of apples in great abundance here. I think myself it is a much maligned apple. As good sauce as one could desire can be made from it. It is good for pies and bakes well. Of course, wise men would not think of using it till its proper season which here is from April to July or August.

Ontario Co-operative Movement

The Co-operative Fruit Growers of Ontario, the central organization with which are affiliated the leading local associations in the province, has this year made a step in advance in reference to the purchasing and distribution of supplies. Up to this year, the directors have simply obtained prices from a number of the wholesale houses and manufacturers and distributed these so that the local associations could write direct to these firms for their supplies. This year they have arranged with the St. Catharines Cold Storage and Forwarding Co., to purchase all of the supplies and distribute to the local associations. In this way they have been able to get lower prices with a better quality of goods. The central association hopes in time to be able to rent or build its own warehouse and to distribute material from some central point. In the meantime, however, this year's plan is a decided step in advance.

It was also ascertained at the last meeting of the executive that it was possible to obtain a charter under the provincial Act, and the executive were instructed to arrange this matter before the annual meeting in the summer. Some of the executive hope to be able to arrange matters so as to sell the product of a number of the smaller associations this year. This will entail some system of inspection and will necessarily have to be gone into rather cautiously. There is no doubt, however, that in time the plan will be perfected and it will aid materially in the organization of smaller associations which are not generally in a favorable position to dispose of their pack. The secretary of the provincial association is P. W. Hodgetts, Department of Agriculture, Toronto.

Plant your garden with good seeds and plants, free of cost. See page VI.

For Spraying

Fruit Trees, Shrubs, Bushes and Plants, there's nothing to equal



Western Horticultural Society

At the convention of the Western Horticultural Society held at Winnipeg on Feb. 17 and 18, the name of this society was changed to "The Manitoba Horticultural and Forestry Association." This was done in order to emphasize the provincial nature of the society. The change met with unanimous approval.

A resolution was adopted appreciating the work of the late Dr. S. J. Thompson, and a motion of sympathy to relatives was passed. A similar resolution was passed with regard to Professor Robertson who represented the Minnesota Horticultural Society at the W.H.S. Convention two years ago. A resolution "that the executive be instructed to approach the bee-keepers association with a view to affiliation," was also adopted.

A carefully prepared paper on the "Beautifying of Rural School Grounds by the Planting of Shrubs and Flowers," was read by H. N. Thompson, M.A.C. This address was accompanied by blue-print sketches of proposed school grounds and evoked such animated discussion that it led to the passing of a resolution to the effect "that the association recommended to its members that they take more active interest in the improvement of school grounds in their respective districts and that the executive committee be authorized to approach the provincial department of education with a view to the preparation of a bulletin with regard to the care and beautification of school grounds and also to approach the Provincial Schools' Trustees' Association on the same subject."

THE NEW OFFICERS

The following directors were elected: John Caldwell, Virden; Dr. H. M. Speechly, Pilot Mound; J. J. Ring, Crystal City; Geo. Batho, Winnipeg; Dr. A. H. Baird, Winnipeg; D. W. Buchanan, St. Charles; A. P. Stevenson, Dunston; W. G. Scott and B. Nelson, Winnipeg; Norman M. Ross, Indian Head; H. Holland, Swan Lake, and A. M. High, Killarney.

Subsequently, the directors convened and elected the following officers: Hon. presidents, W. J. Black, Winnipeg; Jas. Mur-

ray, Brandon; Angus McKay, Indian Head; pres., Dr. H. M. Speechly, Pilot Mound; 1st vice-pres., J. J. Ring, Crystal City; 2nd vice-pres., N. M. Ross, Indian Head; sec-treas., Prof. F. W. Brodrick, M.A.C., Winnipeg.

SECRETARY'S REPORT

President John Caldwell opened the session with a brief address, after which the

representative of the Minnesota Horticultural Society, Prof. S. B. Green, St. Anthony Park, Minn., was formally enrolled as a member of the W.H.S.

The reading of the annual report by Secretary Brodrick showed the Society to be in a healthy condition both as to members and finances, and also that it was doing good work along special lines. The society



"Mr. Farmer, if some steel shingles are as leaky as the guarantee behind them, they're not worth the cost of labor in laying them. Stick to 'The Eastlake.'"
The Philosopher of Metal Town.

You can build cheaper than ever before—you can make your farm buildings weather proof for all time with —

"METALLIC"

Lumber is of inferior quality now-a-days. Why pay high prices for it when you can cover your buildings with "Metallic"? Galvanized sheet steel is the most desirable building material known, and "Metallic" is the heaviest and toughest made.

By actual test "Metallic" has proved itself the best material for roofing and siding. Roofs covered with "Eastlake" Metallic Shingles 25 years ago are in perfect condition to-day—absolutely lightning, wind, rain, snow and rust proof.

Look over this list, check the items that interest you, clip list and mail, with your name and address to us. We will give you valuable information that will save you money.

"EASTLAKE" METALLIC SHINGLES—for all buildings.

"METALLIC" ROCK FACED STONE OR BRICK SIDING—makes an artistic house.

"METALLIC" CEILINGS AND WALLS—most sanitary interior decoration.

"MANITOBA" STEEL SIDING—for grain elevators.

CORRUGATED IRON—for barns, implement sheds and stock buildings.

"METALLIC" GRANARY LINING—Easy to lay. Protects the grain from rats, mice and other vermin.

On receipt of your name we will mail you our interesting illustrated booklets, "Eastlake Metallic Shingles" and "Interior Decoration in Metal." Write to-day.

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Agents Wanted in Some Sections

Write for Particulars

Seeds

\$25

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FOR 4 ONIONS

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CRANSTON'S EXCELSIOR

to be competed for at our store

Catalogue of Garden Seeds, with particulars of prizes, free on request.

DUPUY & FERGUSON
Seedsman
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SPRAYS AN ACRE IN 20 MINUTES

The H. P. Spramotor will spray an acre of Potatoes in only 20 minutes. No other method known can do that work in even twice the time.

The picture shows the H. P. Spramotor spraying potatoes. There are three nozzles to a row, and four rows. Two spray from the sides and one from the top. They are adjustable to height and width up to 40-in. rows. The nozzles will not clog or get out of order. Have a 12-gal. air tank with 100 lbs. pressure guaranteed with 12 nozzles open. Automatic and hand controlled. The Spramotor has agitator clean-out pressure relief into tank and nozzle protector all under control of the driver from seat. The Spramotor is made for 1 or 2 horses. Fitted for Orchard, Vineyard and Grain Crops. Can be operated by hand. The Spramotor saves enough money in time and labour to pay for itself in 1 year on 20 acres of potatoes. Don't be content with moderate results when you can increase per crop 3 or 4 times. Send for Free Treatise on Crop Diseases.

Agents Wanted

HEARD SPRAMOTOR CO.,

1391 KING STREET
LONDON, CANADA

Small Fruits

STRAWBERRIES

and

RASPBERRIES

Quebec Grown Plants

Have you found suitable varieties for your soil and section?

The beginner should make his trials wide to arrive at this.

Professionals should bear in mind the best variety is always moving forward.

A trial patch is very interesting, and inexpensive, and leads to improvements that increase the effectiveness of one's work for all time.

I have some of the best varieties of both these fruits.

Send for Catalogue.

Will Lower Quotations for Quantities.

C. P. NEWMAN

BOX 51, LACHINE LOCKS, QUE.

now is able to offer a variety of 12 different premium plants to its members and this opportunity of obtaining hardy shrubs, etc., has been taken full advantage of during the past season. Emphasis was laid upon the establishment of testing stations to find fruit and flowers suitable for the province and reports from the first year of this work (1909), were most satisfactory, so much so that the advisability of the extension of the work was discussed and taken into consideration later in the session. The report further stated that prizes had been awarded in various districts of the province of Manitoba for the best kept school grounds. The prizes consisted of valuable and suitable horticultural material and in the awarding of these prizes the society had received the co-operation of the inspectors.

DAHLIA CULTURE

Dr. A. H. Baird, gave an interesting address on the dahlia, in which he said that this is the most adaptable of flowers, showing the greatest transformation in the past 100 years and ranging in color from black to white, green dahlias even being known. He stated that it is a most suitable flower for this western country, a species having being produced by artificial propagation, which would flower in as short a space of time as six weeks from the date of planting.

MISCELLANEOUS

A demonstration in judging garden veg-

TREES! TREES!

Fruit and Ornamental Perpetual and Climbing Roses
Beautiful Hardy Flowering Shrubs

Herbert Raspberry Perfection Currant
Descriptive Catalogue and Price List Free

A. W. GRAHAM, Nurseryman, St. Thomas, Ont.



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Contents for April

Scene in Niagara District Cover
 Photograph by P. W. Hodgetts, Toronto.

Fruits and Fruit Growing

Small Fruits in Orchards	<i>L. A. Hamilton</i>	81
Pruning Raspberries	<i>C. F. Sprott</i>	81
Top-working Peach Trees	<i>W. O. Burgess</i>	82
Planting Peach Trees	<i>W. E. Corman</i>	82
Orchard Cultivation	<i>Cooper Bros</i>	82
Bees in the Orchard	<i>G. W. Tebbs</i>	83
Facts about Gooseberries	<i>S. Spillett</i>	83
Plant Breeding	<i>W. Lochhead</i>	84
Pruning the Peach	<i>J. L. Hilborn</i>	84
Bordeaux Mixture		85
Setting out an Orchard	<i>J. A. Moore</i>	85

Flower Garden and Lawn

The Brugmansia	<i>D. B. Hoover</i>	86
Culture of Sweet Pea	<i>H. J. Edwards</i>	87
A Desirable House Plant	<i>Chas. Turner</i>	87
Hedges for Quebec	<i>A. D. Verrault</i>	88
New Hybrid Gerberas	<i>R. Pinkerton</i>	88
Gardening on Vancouver Island	<i>J. A. Grant</i>	89
Philadelphus Coronarius	<i>H. L. Hutt</i>	89
Cut loaned by Canadian Nursery Co.		
Failure in Asters	<i>S. A. Chase</i>	90
New and Little-known Plants		90
Hints for Amateurs		91

Photograph by Felix Koeh.

Vegetables and Market Gardening

Growing Transplanted Onions	<i>A. V. Main</i>	88
Asparagus	<i>A. V. Main</i>	92
Use of Flats in Gardening	<i>W. S. Blair</i>	92
How to Grow Celery Plants	<i>F. W. Hack</i>	92
Leaf Hoppers on Vegetables	<i>A. Gibson</i>	93
Tomatoes in Western Gardens	<i>B. E. Neville</i>	93

General

Editorials		94
What is a Crab Apple?		95
Notes from the Provinces		100
Niagara District Fruit Meetings		xi
Poultry Notes	<i>S. Short</i>	xii

INDEX TO ADVERTISEMENTS.

Automobiles	102
Bank	xvi
Boxes and Baskets	97
Building Material	xii
Cameras	xii
Classified Advertisements	107
Enamels and Watches	xii, 106
Fencing	xiii, xv, 105
Fertilizers	xiv
Flower Pots	108
Greenhouse Material	x
Growers' Supplies	98
Hot Water Boilers	xvi
Implements and Tools	xiv, xvi, 99, 104, 106, 107
Insecticides and Fungicides	ii, v, vi, ix, xi, xii, 96, 97, 98
Maple Syrup	xii, xv, 105, 107
Nursery Stock, iii, iv, vi, viii, x, xii, xiv, xvi, 96, 98, 99, 101, 105, 107	
Phonographs	100
Pianos	103, 108
Roofing Material	xiv, xviii
Seeds and Bulbs, vi, vii, ix, xiii, xiv, xv, 99, 102, 104, 105, 106, 107, 108	
Sprayers	xi, xii, xiii, xv, xvi, 99, 102, 103, 105, 106, 108
Steamship Companies	xvii
Tea	105
Telephones	101
Typewriters	vi
Veterinary Remedies	xvi
Washing Machines	106

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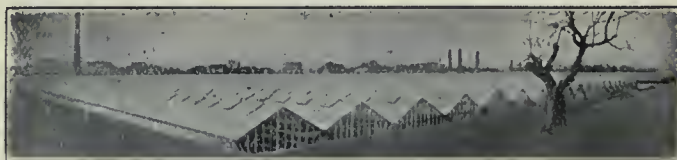
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Vol. XXXIII

APRIL, 1910

No. 4

Small Fruits in the Young Orchard*

L. A. Hamilton, Lorne Park, Ontario

WHAT would you do with four acres of land if you wanted to engage in fruit raising? It is such a question as this that one is frequently called upon to answer. Speaking to a recent enquirer my reply was: "I would plant it out in young apple trees and between the rows would grow small fruits." This answer would, of course, not be applicable in every case, as the question of climate, soil, markets and like conditions must be taken into consideration. But speaking from the experience gained during the past six years in developing an orchard in the Clarkson district, this would be my answer.

In giving this opinion I would at the same time sound a note of warning; viz., that while the growing of small fruits in my orchard has been carried on successfully and profitably, it is impossible to say yet how far the future life of the fruit trees has been impaired by this process. In other words, while the ground crop has proved a success time only will show whether the main point aimed at—the developing of an orchard—could not have been better secured by some other practice.

For the purpose of bringing this subject before you in a practical way, let us take as an illustration one of the four-acre orchards on my farm. This was planted out in standard apple trees with fillers of cherries, plums, pears and peaches in the spring of 1904; the apple trees were set out in rows forty feet apart in a field that had been in clover the previous year. In 1905, one-third of the land was laid out in strawberries and raspberries, and the remainder in a hoe crop. In 1906, an additional area was added to the strawberry and raspberry plantation. The same practice was followed in the year 1907. By that time, therefore, the entire four-acres either was bearing a small crop of fruit or was planted in readiness for the subsequent years. I estimate that the hoe crop produced from the land in these years was sufficient to pay for the cultivation.

The fruit gave me a gross selling value as follows: For 1906, \$282.68; for 1907, \$393.30; for 1908, \$1018.90; for 1909, \$1336.64—a total of \$3031.52.

*A paper read at the last convention of the Ontario Fruit Growers' Association. See illustration on next page.

From this deduct for commission, express and cartage, twenty per cent., \$60.6; picking, \$420; packages, \$175; fertilizers, \$160; plants, \$50; trees, \$50; planting, \$20—a total expense of \$1481. This leaves a profit of \$1550.52. I have already said that I put the value of the vegetables grown as a set off against cost of cultivation.

With one exception, viz., that I spray the strawberries with Bordeaux mixture,

for the first time, giving, although few in number, perfect samples. I have been told that the growing of raspberries in an orchard is not considered good practice. I have nothing as yet to show that they have been injurious to the young trees. Seven Spy apple trees were left standing after I put the pruning axe to the old orchard. These trees yielded twelve barrels of wormy apples in the year before the raspberries were planted; whereas, this year after living in the company of raspberry bushes for five years they gave me fifty barrels of sound apples, while the raspberries backed them up by adding 6000 boxes to the crop. This convinces me that apples and raspberries will feed off the same plate provided the food is there.

To sum up briefly the accounts show that by the practice of growing small fruits in the young orchard I have reared an orchard to the bearing point without costing anything and have a handsome profit of over \$1500 to its credit from the ground crop of small fruits.

Pruning Raspberries

Charles F. Sprott, Burnaby Lake, B. C.

In the winter following the planting of a raspberry plantation, if the plants have grown well, one has to decide what system is to be adopted for holding up the canes that are to fruit the following year. One way is to stake each plant. If this is done by putting the stake in between the plants and bending each plant over to a stake the fruiting canes are not mixed up with the suckers.

The best and most economical way of holding the suckers and fruiting canes in place is by a wire trellis system. Every twenty-five feet drive a post in the centre of the row and stretch tightly a wire (heavy baling wire will do) on each side of the post from end to end, stapling it about four feet from the ground. Tie the canes not more than three together to the wires, bending them over slightly so that the fruiting canes are away from the new canes, and cut the tops of the raspberries off about five or six feet from the ground. Do not leave more than six of the strongest canes to a root. Some growers recommend this bending over of the tips of the raspberry in an arch—

Elevates and Instructs

Editor, THE CANADIAN HORTICULTURIST.—Whilst your paper gives most valuable and practical articles on all branches of horticulture, I wish to congratulate you especially on being the pioneer Canadian paper to attempt to elevate the national character by instructing the populace on the aesthetics of garden work. I allude to your articles on ornamental and decorative gardening generally. "The boy is father of the man," and if the boy of the present generation is brought up amongst refined surroundings, and induced to take an interest in them, however far he may stray from these ideals in his youth, so surely as he gets his own home, will his early training return, and thus be perpetuated in the generations to come.—W. J. L. Hamilton, South Salt Spring, B. C.

I have followed the general practice of growers in my district. The strawberries are heavily mulched with straw manure for a winter covering, and two crops are invariably gathered before the plants are plowed up. The second crop on the strawberry bed in this orchard yielded this year over 12,000 boxes from an acre and a half. They were as fine a sample as I have ever grown. I consider the second crop more profitable than the first.

In the meantime, how have the apple trees fared? They have made a strong growth, the loss from all causes not exceeding ten per cent. This year, in addition to a crop of cherries, pears and plums on the fillers, two of the apple trees, an Ontario and a Duchess, fruited



Growing Strawberries in the Orchard

Spraying strawberries has been practised by Mr. Hamilton with much success. The illustration shows strawberries after spraying.

that is, not cutting them off—but in my judgement one gets a smaller sample and some of the berries are immature that grow at the tips of the canes.

The after culture of this fruit is principally to keep the ground well cultivated and the soil rich in plant food and the old canes cut out each season. It is well to cut the old canes off as low as possible. In the spring do not allow as large a number of suckers to grow. Keep only about seven or eight canes to each plant, later on leaving only six or less if these canes are not strong. If a further plantation is required a certain number must be left to transplant.

Top-working Peach Trees

W. O. Burgess, Queenston, Ont.

Three winters ago the tops of some of our peach trees, more especially those of the Persian type, were badly winter-killed. In that year, there was quite serious damage done, in some localities even grape wood being effected.

The trees I refer to were six years old. They had made a very strong growth, and had borne exceptional crops. When our orchards broke into foliage, and we noticed the condition of these trees, we immediately had the entire head removed, leaving mere stubs from two to three feet long; in other words, the trees were completely "dehorned." In this instance the roots, being well protected by a winter mat of hairy vetch, escaped injury. During that season the stubs feathered out nicely, making a growth of two or more feet, and the following season a growth of five to six feet. Last year (1909) was the third since stubbing, and the trees bore a full crop of choice stock; in fact, the crop was so heavy, it was necessary for us to remove the greater part by thinning.

From this and other experiences we have had, we believe that many of the older orchards in the Niagara district that are high and lanky, with little lower

foliage can be given a new lease of life by stubbing, in other words, de-horning.

We have some ten-year-old Crawfords that have run so high that the trees are difficult to prune, pick and spray. We plan to remove several of the limbs on the east and west sides this season, and look for the remaining branches to give us a crop. Another season by removing the branches on the north and south sides, we shall entirely work over our trees, and lose

but one season's crop. The life of the peach can be considerably prolonged by this method.

Most orchards cut down are not dead when condemned but have run up so high their owners find them unprofitable. If by de-horning five or six more crops can be harvested, it is surely worth while.

Planting Peach Trees

W. E. Corman, Stoney Creek, Ont.

When planting peach trees, see that the point where the bud has been inserted is below ground. In this locality, slant the trees well to the southwest. Cut off from eighteen to twenty inches above the ground. Trim to one bud on the north and east sides and on the south and west sides leave two or three buds; in that way, you will have a chance to see which are the healthiest buds to form branches as the trees grow.

Each year trim out one-third and head back one-third to one-half. Remember to trim the heaviest on the north and east sides. Do not allow the trees to get a slant to the north and east, as it will allow the sun to beam on the trunk and in a short time it will ruin the trees.

Do not allow your trees to get over twelve feet high. By keeping them low you will prevent them being split by the ice storms or being broken down by overloading.

Orchard Cultivation

Cooper Brothers, Grand Forks, B. C.

As soon as the soil can be worked in the spring we double disc, overlapping half the disc and about ten days after harrow twice with the common straight-tooth harrow. We harrow at intervals of about ten days or directly after a rain until the latter end of June, when we again double disc, traveling at right angles to the way we previously disced in the spring. We continue to harrow at intervals of about ten days until the end of August and harrow once in September and once in October, then just before the ground freezes in the fall we double disc.

During the months of July and August we watch the ground closely to see if any crust forms under the soil mulch. Should we find any crust we at once double disc the place or places where the crust is. When using the disc always set the discs at the greatest possible angle.

Close to the tree there is usually a small space that the disc and harrow do not touch. In the early part of the season this is hoed and is generally the only hoeing done in the orchard.



Five-year Old Apple Trees in British Columbia—Grown Without Irrigation
Orchard of Cooper Bros., Grand Forks.

Bees in the Orchard

Geo. W. Tebbs, Hespeler, Ontario

THERE is scarcely a spot anywhere that bees cannot be kept to advantage, but there are some places where they will do better and be of better service than others. The ideal location, however, is in the orchard.



Orchard Honey—Results Worth Having

Four or five hives can be placed under old trees, and less according to the age and size of the trees. Place them on the north side, and shelter will be afforded the hives during the hot days of summer.

In this way the fruit grower will obtain a double yield from the same amount of land—a crop of fruit and a crop of honey. But there is a much greater advantage to be derived. Four years ago I began bee-keeping and people around are telling me that *somehow* the last year or two they are getting better shaped fruit, with a smaller amount of ill-shaped specimens, or what they call "runts." The theory that bees in visiting the flowers fully fertilize the blossoms is past the experimental stage. I believe that in the apple orchards in Gloucestershire in England bees are maintained in the orchards not for the sake of their honey alone, but in order that their labors in visiting each blossom in search of nectar may result in larger and better fruit through a thorough fertilization of the flowers. Bee-keeping and fruit growing are or should be twin sisters. It has been fully demonstrated that fruit growers, who have complained of the annoyance caused by bees and have had bee-keepers remove their bees from the neighborhood of their orchards, have been glad to have them return. Some time ago a writer in a United States fruit paper said:

"It has now become demonstrated that many kinds of fruits, if not all kinds, are greatly benefitted by the bees, and that a large proportion of our fruit, such as the apple, pear, and particularly the plum, would be barren were it not for the helpful work of the honey bee. The fruit grower must become

interested in bees, and I do not doubt that within a few years it will be a rare thing to find a fruit grower who does not keep honey bees, the prime object being to employ the bees in carrying pollen from one blossom to another." It is not meant that bees have the exclusive prerogative of accomplishing this very desirable end to the orchardist, but if in any way it will augment and bring about a larger percentage of perfectly formed fruit, the keeping of bees should be more generally considered in Canada.

A further advantage to the fruit grower is that the bees can be given a place in the work of the year when time is not so valuable. The preparation of the hives and the filling of the supers can be done during the winter, and so save many valuable summer hours.

SPRAYING AT BLOSSOMING TIME

This short paper cannot be complete without a reference to a most important department of work, where, largely through want of knowledge, there is serious conflict between the orchardist and the apiarist. I refer to the matter of spraying. Spraying with poisonous liquids is now almost universally employed. If it is done when the petals of the blossoms are open it is certain that bees will be poisoned, much of the young brood will die, and the inexperienced bee-keeper will begin to look about for a reason for the abnormal death rate.

It has been conclusively proven that it is quite useless, and indeed decidedly harmful to spray during the time that trees are in full bloom, and that better results follow if spraying be done both *before* and *after* blooming, and when there is no danger of bees visiting the trees in quest of pollen and nectar. When spraying is done at blossoming time the pollen is often shrivelled up, and it will fail to develop. In Ontario it has been made by law a misdemeanor to spray during blooming time.



Keep Bees in the Orchard and the Fruit Crop will be More Certain

Fruit growers in all parts of Canada should keep a few hives of bees in their orchards. Get a colony or two this spring, and start now.

Some Facts About Gooseberries

S. Spillett, Nantyr, Ont.

I had to stop growing gooseberries here about ten years ago. My inability to grow this fine fruit was owing entirely to a (to me) new pest—a maggot in the berry. Just when the fruit commenced ripening it began falling until for the last two years I tried to grow it, not a berry was left on the bushes. At the suggestion of Professor Hutt of Guelph, I put a pint of the fallen fruit into a two quart jar and closed the opening. The result was that, in a few days after, the contents of jar was fairly alive with maggots. I have never heard whether any method of destroying the moth that deposits the egg in the berry that produces this maggot has been discovered or not.

When I grew this fruit I preferred the shrub form of bush rather than the tree form. I received 500 bushes, six of each variety from England at one time. These had been all trained to one stem. I had therefore some experience with this form of bush and concluded that though it might suit the slower English clime it did not suit our heavy snows and hot summers.

The slow-growing European varieties do not need much pruning. On the American varieties such as Red Jacket, the best all round berry I ever grew, and Pearl and Downing close stems may be permitted to grow.

In the spring as soon as the suckers start, cut all away except those needed for renewal. In the fall cut away all dark colored stems upon which the fruit has been small that season and replace each by a sucker saved from the spring cutting for the purpose. It will be found necessary to spare two or three of the largest suckers every spring to replace the old dark ones cut out in the fall. Two good crops is about all the one stem

will give. "If a stem is cut at all, cut it out," was the rule I followed. If you thin a head in fall it only induces four or five spindly branches to grow for every one cut.

Do not stir the ground under or about the bushes in the spring, or you are likely to lose your whole crop. I lost three crops before I found the cause. Well-rotted manure under and about the bushes in spring or fall is always in order.

The Principles of Plant Breeding*

Prof. Wm. Lochhead, Macdonald College

SOME persons may have doubts as to the general application of Mendel's results and laws. Insufficient time has elapsed (nine years) for confirming Mendel's conclusions in the crossing of all plants and animals, but much testing has been done, and it may be said that the laws hold true in the majority of cases where hybrids have been secured. The following partial list will give some idea of the amount of confirmatory work accomplished: Correns with peas, corn, garden truck and nettle. Tschermak with peas. De Vries with corn. Locke with corn. Riffen with wheat and barley. Saunders with sweet peas. Bateson and Saunders with *Lychnis*, *Atropa*, *Datura*, and a large variety of organisms. Bateson and Gregory with primroses. Hirst with rabbits and tomatoes. Experiments carried on also with rats, guinea pigs, cats and horses among animals, and with oats and beans among plants, have shown Mendelian inheritance in certain characters in hybrids.

It must be understood that in the list just cited the Mendelian Law of Inheritance was confirmed with regard to but a few pairs of characters in each case. The task of the future investigator is to determine: (1) The plants and animals that mendelize, (2) the dominant and recessive characters of each pair of contrasting characters, and (3) the causes of the apparent exceptions to mendelization; for example, in those cases of *blended* inheritance where the character possessed by the hybrid is an average or blend of the two parental characters, and in cases of *mosaic* inheritance "where the characteristic colors of the two parents are inherited in the offspring in patches on different parts of the body."

While it is true that the majority of cases that follow Mendel's Laws of Inheritance have reference to hybrids between varieties, several cases have been observed where hybrids of elementary species and Linnæan species follow the same laws.

The plant breeder who attempts to work along Mendelian lines must bear in mind that he must breed for one character at a time, and that he cannot "obtain in combination both of a pair of contrasted characters."

Burbank secures his best work by crossing. Occasionally hybrids are produced which surpass the parents in vigor of growth or hardiness or profuseness of bloom. His hybrid walnuts,

which are exceedingly vigorous growers, fine grained and compact, were obtained as hybrids by crossing the English walnut with the California black walnut. His Wickson plum was produced by crossing his Burbank plum with the Kelsey, both being derived from the Japanese *Prunus triflora*. His Burbank and Satsuma plums are probably mutants, which he secured from plum pits sent him from Japan.

The Shasta daisy is an example of the results of crossing. It is the product of crossing three forms—the English, the American and the Japanese daisies. It has the tall, stiff stem of the English daisy, the prominent white flowers of the Japanese species, and the profuseness of bloom of the American species.

THE ASSOCIATION OF CHARACTERS.

It is probable that in man's early history, when he was becoming acquainted with the plants that grew all about him, he perceived the correlation of the qualities of certain plants with certain physical characters; i. e., he early associated qualities with characters. Woodlore, for example, is largely the information with reference to the association of plant and animal qualities with their physical characters.

It is frequently observed that a particular color in a flower is associated with a particular taste or color in the fruit or seed, or a particular color with a particular form. Nilsson has discovered some very interesting correlations in his studies of barleys, while Burbank uses intuitively the principles of correlation in the large amount of selection he practices, for he makes the majority of his selections while the plants are in the seedling stage. He can "predict one quality or one function from the study of others."

This correlation of characters brings forward again the idea of unit-characters, which we have seen, formed the basis of Mendelism. The idea of correlation forces on us the assumption that the unit may express itself in many ways. It may express itself in the leaf, seed, fruit, stem and tissue; the "correlated external marks may be but the expression of the same internal character."

The scientific study of hybridism becomes, therefore, very complex. It requires a careful examination of all parts of the plants under consideration. The most trifling marks are worthy of study and comparison with valuable qualities, since selection may be guided by them.

A correct and thorough knowledge of the principles underlying plant breeding is very important. Fruit growers are sometimes carried away with the im-

pression that the origination of new varieties is a simple matter, and that definite results should be secured in a year or two. They should remember that while it is true that the methods which have been developed during the last few years are less empirical than formerly, we are just beginning to understand the *rationale* of plant breeding. We are making such rapid progress in our study of the mode of inheritance that the breeder will soon be in a position to move more rapidly, "more surely, and with greater economy of time and of material." Through a knowledge of the processes of *Selection*, *Mutation* and *Hybridism*, may we not hope to get greatly increased yields and much better products, if we can originate better and more productive varieties? The time is fast approaching when the government must grasp the importance of this subject of plant breeding and be willing to expend much more than it is now expending in the establishment and maintenance of high-class breeding stations. The future additions to the wealth of the country must come mainly from an increase in the producing capacity of our agricultural lands.

Pruning the Peach

J. L. Hilborn, Leamington, Ont.

To follow my method of pruning peaches, it is necessary to start when the trees are planted. Before taking the trees to the field, I have them all gone over, cutting the main stem back to twenty or twenty-four inches above the point where the tree was in the soil. I then cut any side branches back to one bud from the trunk. These buds will usually burst, as also such good buds as are on the main stem.

After the trees are well started, say in June, I go over them and rub off all but four or five, which I select to form a head. An ideal head in my estimation is one that has the branches fairly well distributed from the top of the trunk to within ten or twelve inches of the ground. The first year after planting and all succeeding years, I prune in proportion to the growth that the tree has made. Branches that have only grown twelve to fifteen inches, I would not disturb unless it was to remove the terminal bud to compel it to branch.

Branches that have grown eighteen inches and upwards, I cut back from one quarter to one half the growth,—the latter where the growth is three to four feet,—and always endeavor to cut back to one or more side branches. Before cutting back, I thin out surplus branches and leave only such as have room for proper development.

Sour cherries need more moisture and will thrive in heavier land than sweet cherries.

*The conclusion of a series of articles that has appeared at intervals in THE CANADIAN HORTICULTURIST, during the past year. Preceding instalments were published in last June, September and March issues. The entire article was originally prepared for and read at a convention of the Quebec Pomological Society.

How to Make Bordeaux Mixture

TO prepare Bordeaux mixture properly, at least two barrels besides the spray pump are necessary, and four barrels are better. The usual formula for Bordeaux mixture is four pounds of bluestone and four pounds of

mixture, mix four ounces of good Paris green to a paste with a little water, dilute with water enough to enable it to pour and add same to the mixture in the pump. If the Paris green is not good, another ounce or two may be



In Large Orchards and in Small Ones, whose Owners Co-operate, the Power Sprayer is Replacing Hand-power Machines
The illustration shows one of the machines manufactured by the Deming Company, Salem, Ohio.

lime to forty gallons of water. A little more lime may be beneficial and will do no harm.

To make a stock solution, dissolve twenty pounds of bluestone in one of the barrels with twenty gallons of water. This is best done by placing the bluestone in a sack, suspending it just beneath the surface of the water in the barrel and leaving it over night. This will give one pound of bluestone to each gallon of water. In another barrel slake twenty pounds of lime and when slaked add sufficient water to make twenty gallons. This will also give a stock solution of one pound of lime to each gallon of water.

When about to spray the trees, place sixteen gallons of water in the third barrel and four gallons of the bluestone stock solution, making in all twenty gallons, or half a barrel. In the fourth barrel place sixteen gallons of water and four gallons of the milk of lime, making also twenty gallons in all, or half a barrel. These may then be poured into the spray pump and mixed thoroughly, when it will be ready for application. If the third and fourth barrels are not obtainable, the four gallons of bluestone may be placed in the pump immediately and the pump nearly filled with water, when the four gallons of milk of lime may be added. The important point to remember is that the stock solutions of bluestone and lime must not be mixed together without being first well diluted.

To add an insecticidal property to the

used. Arsenate of lead may be used instead of Paris green. It is more adhesive, and is absolutely harmless to the foliage. Use two pounds to forty gallons of mixture. It is not necessary to use these poisons for the first spraying.

These operations may be repeated until all the stock solution is used, when more will have to be made if required. When spraying keep the mixture thoroughly agitated, as Paris green will not dissolve in water but remains in suspension. It is best to spray four times: First, when the trees are dormant in spring, for fungi; second, when the buds are opening, for bud moths and cigar

case bearer; third, immediately after the blossoms fall, for codling moth; fourth, about three weeks later, for apple scab and leaf eating insects.

Setting Out An Orchard

J. A. Moore, Hazelbrook, P.E.I.

In preparing to set out an orchard we would select a field affording natural drainage and, if possible, natural shelter; that is, if one has a grove or hedge on the farm to take advantage of, as a shelter for the orchard, for there is not much use of growing fruit and having it blown off by the heavy autumn winds. A row of cherry trees planted thickly around the outside of the orchard would make quite a good windbreak and prove a source of profit as well. We would also plant an evergreen hedge outside of all and, if fruit trees and evergreens were set out at the same time, the shelter would be sufficient by the time the trees had fruited.

A good preparation of the ground would be to plow and harrow, then sow with peas or buckwheat, and when it had grown up sufficiently, to plow it down. This would make the ground mellow and provide an abundant supply of the best kind of food for the roots.

After pulverizing the soil and smoothing it, lay off the orchard in rows each way, at whatever distance the trees are to be planted. Set up stakes in line and plant where the lines intersect. This will leave the trees in line every way and will facilitate working among them. When planting the trees dip the roots in a pail of water, as the clay will adhere quickly to the wet rootlets and facilitate speedy growth. For years hoed crops may be grown between the rows of trees, if plenty of manure is used; the trees can thus be cultivated with profit. Late in the fall the young trees should be wrapped about the trunk with building paper to the height of about eighteen inches to protect them from being girdled by mice.

This is about the way we set out our



Fruit Growing on Prince Edward Island Can be Made a Leading Industry of that Province
The illustration shows the orchard of Mr. J. A. Moore, Hazelbrook.

trees, and we have never yet had an apple tree fail to grow. If every farmer in Prince Edward Island could be induced to plant five acres of orchard the exodus would stop and we would double our population in fifteen years.

The Stark Apple

1. Kindly inform me regarding the suitability of the Stark apple for planting on a clay loam soil in the central part of Oxford county.

2. Is it long in coming into bearing?

3. Is the tree productive?

4. Is the fruit of good appearance and quality?

5. Are the tree and fruit specially subject to scab or any other disease?

6. Would you advise planting the Stark

ance and quality, not so highly colored as Ben Davis but somewhat better in quality, although it does not keep so long.

5. The tree and fruit are not specially subject, as far as I am aware, to scab or any other disease.

6. I should prefer planting some other variety with the Baldwin in an orchard of four acres, although I believe Baldwins are to a large extent self-fertile.

7. Other varieties which might be planted instead of Stark are Greening and Northern Spy. As a long-time proposition the Spy would probably pay as well as Stark, but the difficulty is that it is very late in coming into bearing. Stark would bear earlier but it is doubtful if it would pay any better in the long run.

8. Placing 170 trees on four acres would mean a distance of thirty-two feet from tree to tree. I should consider thirty-eight feet close enough and forty feet would be still better.—J. W. Crow.

The Brugmansia

Daniel B. Hoover, Almira, Ont.

The Brugmansia is one of the greatest flowers I ever saw, but, like all pets, it requires nursing and training. The shrub is very sensitive to frost. Years ago I tried the plan of Mr. Jackman (in January issue) to winter my Brugmansia in the cellar, but never had any luck. In the spring its tender wood always came out dead and soft to the ground. I cannot account for the cause of my misfortune, as my cellar is very dry and frost-proof. Bulbs such as cannas, dahlias, glad-

iolis, also potatoes and vegetables, keep well in the cellar, but the Brugmansia does not. The safest winter quarters for my shrub that I have found yet is the conservatory. In this place my shrub keeps perfectly, excepting that everlasting trouble, green aphids, a formidable pest which try their best to destroy the tree. They cannot do it if kept well brushed off. After the shrub has shed all its leaves, the lice will disappear.

The tree will then be partly dormant until near spring, when a new growth of wood will start. Mr. Jackman's shrub is nine feet high. I prefer a lower one.

Mine is about five feet high and bore about forty of those mammoth flowers last year. At one time I had a shrub six feet high by eight feet across the top which bore ninety-three flowers. They all opened at the same time, and it was the grandest sight I ever looked at. The best time to look at the flowers is after dark in the evening by placing a bright lamp to one side of the tree. The flowers are the best at this time, though they are open during the day, but a little slack.

By cutting back well in the spring the best crop of flowers generally come about the first of September. In March last year I cut back all the year's growth with the exception of three buds. Of these I allow the best one to take the lead. The remaining ones will soon make a stout, thrifty branch, which will fork perhaps two or three times before flower buds will appear.

If a higher tree is required, cut off above the first fork. This will give the tree about a foot of growth. This plan should only be taken while the shrub is young, say until two or three years old, according to the thriftiness. The shrub should be turned out of the tub every few years to clean off the binding soil around the roots. Replace it in the tub with a good packing of rotten cow manure and earth well mixed. The flowers should not be sprinkled at all, but the roots require plenty of water during flowering season.

The Brugmansia is naturally an evergreen, if its leaves are not destroyed by insects. Occasionally it will bear a few flowers any time of the year. I have had a few flowers on my tree in the fall and also a few in the spring on twigs not cut back. The flowers generally will stay open for a week, if weather is not too hot. I have had Brugmansias for about twenty years, but could never find the seed capsules on any of the trees I have grown. I grow my trees from cuttings of last year's growth.

Strawberries are a safe crop to grow in young orchards.

Several methods of setting orchards may be seen in British Columbia, most of them providing for "fillers" to be removed when crowding begins. The western men seem to have faith in their ability to sacrifice beautiful, bearing trees in time to save crowding and consequent injury to the permanent trees. It requires grit to give the George Washington touch to fillers just in their prime, when "another crop or so" seems not to spell doom for the permanents. Quincunx planting is a favorite method; apples, for instance, are set thirty feet each way in squares and a "filler," an early bearing kind, is set in the centre of each square.



A Golden Crab Tree in Alberta

A Siberian crab planted nine years ago, is fifteen feet high, and yielded a full crop last season. It was planted on the east side of a close board fence and has received no special care. The tree came from the Experimental Farm at Indian Head, Sask., and was planted in Calgary by its present owner, Mr. J. C. Linton, of that city.

or any other apple with the Baldwin, or would you plant the Baldwin alone in an orchard of four acres?

7. If some other variety would be better as a winter apple, please name it.

8. Would 170 trees be too many on four acres?—W. H. C., Sweaburg, Ont.

1. As far as soil and climate is concerned I would not hesitate to plant Stark on clay loam soil in Oxford county.

2. In our experience it begins to bear profitable crops in eight or nine years.

3. It is not one of the heaviest bearers but is nevertheless decidedly productive.

4. The fruit is fairly good in appear-

Culture of the Sweet Pea in Manitoba*

H. J. Edwards, Winnipeg

THE reason that we so seldom see this beautiful annual at its best in this province can be attributed chiefly to two causes, namely, late sowing and over-seeding. This paper is



Many Sweet Pea Plants are Destroyed by the Cut-Worm
Plant on left has been cut off by this pest. Digging usually will locate the cause of the trouble near the plant, as shown.

written for the purpose of advocating exactly the opposite; that is, early sowing and sparse seeding.

In planting, north to south is the best direction, and an open space away from trees and buildings the most desirable. There should be at least four feet between the rows, five feet would be better still for the purpose of attending to the plants.

For the best results, the ground should be prepared in the fall. A good plan is to dig a trench a foot deep and place in the bottom three inches of well-decayed manure. On the top of this put four inches of soil and thoroughly mix. The remainder of the soil should then be placed on top and levelled. On new ground and in places where the soil is very rich, it is advisable to eliminate the manure for a year or two; if the soil is too strong the buds will have a tendency to drop off.

In the spring, as soon as the frost is out of the ground to a depth of three or four inches, the seed should be sown, making a double row, six inches between the rows, the seed being planted four inches apart, and one and a half inches deep; on light, sandy soil, the seed should be planted another inch deeper.

Sticks should be provided early for the plants to climb. When these are not obtainable, wire netting nailed to good stout posts will do nearly as well.

During the growing season, the surface of the soil should be kept loose, and all weeds destroyed; care being taken not to disturb the roots of the sweet peas.

In late spring and early summer keep a sharp lookout for that abominable pest the cut-worm. The following remedy is to be found in a little book called "The

Beautiful Flower Garden," by F. S. Matthews, who says: "I have fought against this wretched night-working garden pest with some success by digging four inches around the plant he has destroyed, and invariably capturing him; then he is shown no mercy."

When the plants begin to bloom, it is best to cut all the fully developed flowers daily, and to see that no seed pods are allowed to form. If this is not done, the plants will cease to bloom. In dry weather give a liberal supply of water, and occasionally a little weak liquid manure. If these directions are followed, the plants should be in bloom from the first week in July until fall.

Where the situation is bleak, preference should be given to the older or grandiflora type, the newer or Spencer type being planted in a more sheltered position. The grandiflora type will withstand the wind far better than any of the Spencers. When named varieties are grown, all rogues should be carefully removed, and leaving one strong plant to every three or four sticks (about twelve inches) is a secret to success.

The seed catalogues sent out by various seedsmen contain a fairly comprehensive list of sweet peas, with a full description as regards type and color. It

nature. There is one variety which might be mentioned, however, and that is Coccinea. The seed of this variety is as a rule fine and plump, and would compare favorably with the finest samples of seed grown; some years not one seed from a packet will germinate; this is not the fault of the seedsman or grower, but is due to a peculiar trait in the variety itself.

The following "Dont's for Amateur Gardeners" are taken from a special sweet pea number of *The Gardener*, and anyone who wishes for the best results should bear them in mind:

Don't forget, the deeper (in reason) the soil is cultivated, the more vigorous will be the plants.

Don't imagine that you can grow sweet peas well on the same plot of ground indefinitely.

Don't forget that early sowing is half the battle in the successful cultivation of the sweet pea.

Don't ignore the fact that it is possible to grow sweet peas with flower stems eighteen or twenty inches long.

A Desirable House Plant

Charles Turner, Simcoe, Ont.

I have often been asked to suggest a desirable house plant that will thrive where others are likely to fail. There is no plant to my knowledge more suitable or more deserving of a place in a house than *Aspidistra lurida* or its variegated variety.

This plant, although not often seen or much used in this country, is a great favorite in England, being used on nearly all decorative occasions. It stands removals, variations of the temperature, draughts, neglect, etc., exceedingly well. Once it is well established, it takes a lot to kill it. It is never attacked by insects and is not subject to disease.

It is pretty and has a nice spreading habit of growth. It is a very desirable house plant, especially where plants are liable to neglect. It flourishes best in a compost of good loam, dried cow manure and grit or coarse sand. Readers of *THE CANADIAN HORTICULTURIST* should give this plant a trial in their homes.



Every Home-keeper in the West May Have Sweet Peas in Abundance

The sweet peas in the illustration were sown on April 18, 1908, the photograph taken on July 19, and at the end of August the plants were over eight feet high. At the Winnipeg Exhibition the grower of these and the author of the accompanying article, Mr. H. J. Edwards, has won many prizes with his sweet peas.

is generally a matter of personal choice as to which are the best colors.

The latest list available mentions over 700 different named varieties; but, as a great many are included in a list of "too much alike" varieties (some have got nearly twenty names), it would be unwise to particularize in a paper of this

*Part of a paper read at the convention of the Western Horticultural Society held at Winnipeg.

Hedges for Quebec

A. D. Verrault, Village des Aulnaies

It is difficult with us (seventy miles northeast of Quebec) to keep a hedge in good form, on account of the heavy snowfalls that we have; so we must

with symmetry, removing all dead wood and cutting back the straggling branches to about one-half their length. This severe pruning promoted a dense and luxuriant growth. They are, without contest, my finest hedges, especial-

gan to deteriorate, and as long as three weeks in a cut state, but they must not be cut until fully expanded, and the male organs well developed.

These new hybrids have proven very valuable for outdoor use in England, with slight protection, coming through the winter quite unharmed. It is probable that where we get sufficient snow in this country we also might make use of them in the open ground.



Berberis Thunbergii Bordering a Flower Bed, and at the right, a Hedge of Purple-Leaved Barberry

At Village des Aulnaies (Que.) Nursery

choose those that will support best a heavy weight of snow, whose branches will bend rather than break from the pressure of snow in springtime.

I have experimented with several varieties and find that the following hedges suit best our district: *Berberis Thunbergii*, *B. vulgaris* and *B. v. atropurpurea*. They are a most interesting family of shrubs, varying in size from two to six feet high, and rich in variety of leaf, flower, fruit and habit. Their showy orange and yellow flowers in terminal drooping racemes in June are succeeded by bright and various colored fruit, which they retain in winter.

I prefer them planted in a single row, from one to two feet apart (according to variety), and left untrimmed, using pruning knife to assist nature to lop off straggling branches, to remove dead wood in the spring.

The rough-leaved viburnum (*Viburnum rugosum*) makes also a very ornamental hedge worth seeing at all times of the year. Its large, dark leaves with terminal cymes of white flowers in June, followed with red fruits, render them quite attractive. It retains its foliage very late; in fact, not before hard frosts have settled will it fall. The plant is a good grower, supporting well the pruning, and is quite hardy.

We have a currant hedge made of red currant bushes that had been planted in nursery row, eighteen inches apart, for commercial purposes, where they remained six years. As all plants left to themselves, they had a very poor appearance, I then decided to trim them

ly when the fruit is ripe. [Note.—This currant hedge was illustrated and described in THE CANADIAN HORTICULTURIST for March, 1907.—Editor.]

The New Hybrid Gerberas

Robert Pinkerton, Montreal

Mr. Irwin Lynch of the Cambridge (England) Botanic Gardens is responsible for the beautiful new race of Gerberas known as *Gerbera Jamesoni hybrida*, by crossing *Gerbera Jamesoni* with *Gerbera viridiflora*. They are easily raised from seed which may be sown at any time, but preferably in spring or early summer.

Sow the seed in a compost of one-third good garden loam, one-third sharp sand and one-third leaf mould. The seed should be inserted in the soil so that the pointed or tufted end is up, the tuft coming about level with the top of the soil. The seedlings will appear in from eight to fifteen days.

When large enough to handle, prick off into small pots, and as the plants grow shift into a larger size. A rather narrow deep pot seems to suit them best.

They seem to like plenty of heat in summer, but must be kept in a cool house in winter, and on the dry side. They usually start blooming in from seven to nine months from seed. In Europe they advocate night-soil as being the most effective fertilizer for established plants. The individual flowers last for a remarkably long time. I have seen flowers on pot plants which were from five to seven weeks before they be-

Some of the best Roses

By "Amateur"

In reply to the request of "A Lover of the Queen of Flowers" that appeared in a recent issue, the following is a list of hybrid perpetual roses which will please:

Alfred Colomb	Madam Gabriel Luizet
Baroness Rothschild	Marchioness of Dufferin
Captain Haywood	Merveille de Lyon
Charles Lefebvre	Mrs. John Laing
Clio	Mrs. R. G. S. Crawford
Duke of Edinburgh	Madame Victor Verdier
Dupuy Jamain	Marshall P Wilder
Eclair	Paul Neyron
Fisher Holmes	Prince Camille de Rohan
Frau Karl Druschki	Robert Duncan
Margaret Dickson	Suzane M. Rodocanachi
Mrs. Coeker	Ulrich Brunner

For those who wish to try a few of the hybrid teas, I would suggest:

Bessie Brown	Kaiserin Augusta Victoria
Caroline Testout	La France
Killarney	Mrs. W. J. Grant

Growing Transplanted Onions

A. V. Main, Almonte, Ont.

The onion ground previously to planting should be forked over and made into a fine mould on the surface, using a rake to make it level. If the soil is light, the roller can go over it. With heavy soil it is unnecessary to firm it. At this preparation, a dressing of wood ashes and some reliable garden fertilizer may be applied. Have it incorporated with the surface soil.

Plant early, nine inches apart, and allow fifteen to eighteen inches between the rows for cultivation. I prefer damp weather for this operation, and generally use a long board to stand on. One man can single out the onion plants and lay them out to another one planting. Use a small dibble and plant shallow.

If hot days follow give a spray overhead and within a week the plants will look quite settled for six months' labor. In dry spells, good heavy waterings will be of great benefit.

I use occasional dressings of nitrate of soda. The safest method to apply it is to give a dessert-spoonful to three gallons of water and run it between the rows. This can be done fortnightly. Peruvian guano is another splendid hustler for growth. Keep the ground well aerated and clean by frequent applications of the hoe. In midsummer a top-dressing of short decomposed manure will retain the usefulness of water and fertilizer.

Ornamental Gardening on Vancouver Island

Jas. A. Grant, Royal Oak, British Columbia

THE subject "Ornamental Gardening on Vancouver Island" is difficult to grasp because of the fact that everywhere are to be found scenes which are beautiful in nature, and in the cases where art has lent a hand to improve the landscape with lawns, vistas of flowers and evergreens, the scene has been intensified and prolonged. It is not uncommon here at Christmas to pick Gloire de Dijon roses and berried hollies within a few feet of each other, grown in the open. This shows a glimpse of the possibilities that nature has provided for the ornamentation of the "Gates of the West."

On the southern end of the island, within a radius of twenty miles of Victoria, most of the artificial helps have been given, although its development everywhere is only a matter of time. The climatic conditions and the scenery abound throughout the island.

Victoria and vicinity may well be known as a city of gardens. From the cottage to the castle, almost everyone has a garden. Unlike other Canadian cities, tenement houses and hotel living is very little in evidence, and even they are surrounded by flowers.

Everything in evergreen and deciduous trees and shrubs can be grown with ease and the rocks produce, from crevices and soil deposits amongst them, picturesque oaks and arbutus trees. Ornamentation is limited only to choice and taste, Nature's supply being almost unlimited. It is not a matter of great expense to have picturesque surroundings, as many of the trees and shrubs required can be had for the digging, including the flowering dogwood and arbutus.

The above mentioned conditions have been taken advantage of and many and varied are the results. In the Rockland Avenue district of Victoria, where the grounds surrounding the residences are large, landscape gardening is the rule. Walks winding amongst the rocks and borders eight to ten feet wide planted to shrubs and flowers backed by spreading oaks, provide a sylvan scene which visitors delight in viewing from the top of a tally-ho coach. Unfortunately the owners, English-like, build high fences around their grounds, and although the beautiful flowering and evergreen trees tower over the fences and indicate the beauty within, one has to get up high to admire the otherwise unseen beauty; hence, the high coach is the outcome of the high fence.

A few of the leading favorites in trees, shrubs, flowers and bulbs which come to perfection here and are generally favored to supplement the natural product, are: Evergreens, Norway

spruce, monkey puzzle (*Araucaria*), flowering cedar and holly, juniper (deciduous), birch (silver), horse chestnut, poplar, mountain ash, weeping willow; and in shrubs—ornamental snowball, lilac, azalea, rhododendron, hydrangea and the rose. The sweet pea here finds its home and comes to perfection, also the dahlia, pansy, geranium, lobelia, clematis, wisteria, honeysuckle, jasmine and ivy. Bulbs all grow well in the open.

That ornamental gardening has not reached its maturity can well be understood when one considers the evolutionary state of things. People are coming in very rapidly, far faster than systematic work can follow, with the inevitable result. It will upset things for a time, but will result in greater order and greater beauty as well as profitable employment to those who make a profession of garden making.

Philadelphus Coronarius

Prof. H. L. Hutt, O.A.C., Guelph

Among the many varieties of ornamental shrubs, none is more worthy of a place upon the home grounds than the common mock orange (*Philadelphus coronarius*), or, as it is sometimes incorrectly called, the *Syringa*. This latter confusion of names is due to a mistake made by botanists 300 years ago in classing the *Philadelphus* or mock orange with the *Syringa* or lilac. But whatever confusion there may be in the names, there is no mistaking the plant when we are once familiar with it. It is a vigorous, upright grower which, when we obtain it from the nursery, usually has remarkably strong, fibrous roots and is easily transplanted. It adapts itself well to any well-drained soil, is extremely hardy, and not affected by insects or fungous diseases, as is sometimes the case with many other desirable ornamentals. When full grown the bush attains a height of eight or ten feet. It usually begins blooming, however, when

not more than two or three feet in height. It bears a great profusion of large, creamy white, fragrant flowers which appear about the first or second week in June, and in favorable seasons when the weather is not too hot they last for a couple of weeks.

The *Philadelphus* when planted alone makes a good shapely specimen plant, but is used to best advantage when planted in masses or groups in the shrubbery border, where it forms an excellent background for smaller shrubs or hardy perennials. There are a dozen or more varieties of *Philadelphus* in general use, some of the smaller ones being not more than two or three feet in height, while the larger ones, such as *P. grandiflorus*, attains a height of twenty feet or more. The latter is much later flowering than *P. coronarius*. With a good selection of varieties the bloom of this species can be ranged to cover nearly the whole month of June.

One of the most showy shrubs that we have is the Japanese quince (*Cydonia Japonica*). Its glossy green foliage and its scarlet flowers make it exceedingly attractive. In autumn it is also attractive when its golden colored, highly perfumed quinces are ripe. Although a brilliant subject, this shrub must be used sparingly. One or two specimens on a small lawn is sufficient. Its planting should not be overdone.



The Common Mock Orange—*Philadelphus Coronarius*

Failure in Asters

G. A. Chase, Toronto

I HAVE always had a good many asters in my flower garden. I buy the best seed of named varieties that I can get and raise my own plants in a hotbed, and my plants are always straight and stocky when I set them out in early June—far better than any I see exposed for sale. As I transplant the seedlings into shallow boxes in the hotbed, setting them about two and a half inches apart in the boxes, the plants receive little or no check to their growth on being transferred to the garden, a little black earth two and a half inches square going with each plant.

The soil of my garden is sandy but dark from cultivation; the subsoil is yellow sand; it is a very open soil. In digging the spade is sent down as far as possible, at least fifteen inches; a fair quantity of rotted manure is dug in, supplemented by a little bone-dust raked in the bed; and water is liberally though not superabundantly given. Weeds, if they show themselves, pay for their rashness, and the Dutch hoe is in ready use to check all baking of the surface.

Now, in all justice, should not my asters be good? And yet for the past three or four years my finest varieties—Victoria, Mignon, Hohenzollern, Comet—have all drooped and died; if any of them reached the blooming stage the flowers were inferior or only half formed. The Victoria, our finest and most delicately soft aster, suffered most. I do not think I had a bloom these last two years. The Mary Semple, however, a tall branching aster, has always been most vigorous, giving abundance of bloom every season.

I wrote to the authorities at the Ontario Agricultural College, Guelph, telling my trouble. They thought it might be blue aphid at the roots, placed there by ants, and advised using carbon bisulphide around the plant. But this was of no avail; plants kept on drooping and dying. Nor when I dug up several of the sickly plants could I find any aphid. A year ago last fall I took all the soil out of my beds, a foot or more deep, and replaced it by other soil, on which asters had never been planted. Last summer the asters, excepting Mary Semple, all died as usual. I have some plants in the spring to friends who had a clay loam in their gardens. I thought changed soil might prove a remedy; but, in one case, the delicate varieties died early as with me, and in the other, they did better and gave fair bloom.

I should be very glad if any of the readers of THE CANADIAN HORTICULTURIST could suggest the cause of the trouble in my asters and name remedy. In examining my sickly plants I found that every one was diseased at the base of

the stalk, turning black. The roots looked fairly good. It has occurred to me that as the varieties I mention do not grow tall and have a spreading thick growth of leaves, low down on the



The Kind of Work That is Being Advocated by the Horticultural Societies of Ontario

Part of the lawn of Mr. Ralph C. Wade, Toronto. The Toronto Horticultural Society is preaching the gospel of improved home surroundings, and its efforts are bearing fruit in all parts of the city.

stalk, some fungus on the stalk may be nourished by the shade and continuous dampness caused by this low thick growth, and that this may be the origin of all the trouble. I shall try some fungicide next summer.

New and Little-known Plants

Lists of new, little-known perennials and annuals recommended by the novelty committee of the Ontario Horticultural Association were published in THE CANADIAN HORTICULTURIST for January and March respectively. Other plants recommended by this committee are as follows:

NEW CANNA

King Humbert.—One of the most striking of recent introductions. Broad, massive foliage of a rich, dark, coppery bronze, very large trusses of showy orchid-like flowers of brilliant orange scarlet, with darker markings. Very effective. Height five feet.

NEW GLADIOLI

America, Afterglow, Dawn, Evolution, Victory.

NEW CHRYSANTHEMUMS FOR AMATEURS

Pompons: Snowdrop, pure white; Alena, silver pink, very free and effective.

Single: Lady Lu, large, pure white, single four-inch flower, very effective; Miss A. Holden, bright straw color tint-

ed carmine, pretty, unique, like a cactus dahlia; Anna, pure white, star-like flower, recurve petals, makes a beautiful pot plant, one of the best.

Japanese: Early Snow, white; Pacific Supreme, pale pink.

Anemone Japanese: Beatrice Asmus, pure white, a gem, one of the best;

Nancy Perkins, bright amber, shaded magenta, very attractive.

MISCELLANEOUS

The following notes were supplied by Mr. Roderick Cameron, Toronto:

Argyrea speciosa: A strong, fast growing vine producing large, pink colored flowers. Belongs to the order Convolvulaceae, corolla campanulate. Leaves large, heart-shaped, very silky, silvery on the under side.

Loasa lateritia (Chili Nettle): Nettle family. All the species of *Loasa* are remarkable for the singular structure of their flowers, and the stinging character of their leaves. This one is not hurtful, although it makes a person handling it very uncomfortable. Native of Chili. Half hardy perennial. A variety of the above, *Canarinoides*, is a highly dangerous plant to the touch.

Rehmannia angulata: This is one of the best flowering half-hardy plants grown. When in bloom it resembles a very large pink foxglove. If grown in pots in a cool house and rested during the dead of winter it will flower about Easter. A great novelty.

Yucca glauca (Syn. *Y. angustifolia*). As hardy as *Y. filamentosa* and rare in this country. They flower in Toronto. The plants form a short trunk. The flower-spike is not so tall as *Y. filamentosa*, and the flowers are of a greenish white color.

What Amateur Gardeners Can Do in April

THE hotbed should be ready for the sowing of vegetable and flower seeds. These may be sown directly in the soil of the hotbed or in "flats" or shallow boxes which should afterwards be placed in the bed. See the article on page 92. Always allow a little air to come in at the back of the frame so as to allow the steam to escape that always arises from a newly made hotbed. A little finely-sifted coal ashes placed on top of the manure will help to keep in the heat.

Sow seeds of annuals in light sandy soil whether in boxes or in the hotbed. Sow very fine seeds on top of the soil; they do not need to be covered. Cover seeds of asters, balsams, zinnias, petunias, phlox, cockscombs, and so forth, about the same depth as the size of the seed. Always water the soil in the boxes before sowing the seed. After sowing, press the seed evenly into the soil with some flat object. Darken the surface with newspapers or cloth so as to cause the seeds to germinate quickly. When the shoots begin to show, remove the cover. Watch the ventilation closely at this period.

The time for starting a hotbed depends upon local climatic conditions. These notes are for Toronto and vicinity. The work is done earlier in the Niagara and Essex peninsulas of Ontario and in British Columbia, and later in other parts of Ontario and in Quebec and the maritime provinces.

If a hotbed is not available, seeds may be started in boxes in the house. As soon as the seedlings show, place the boxes in a sunny window.

Sow out-doors, as soon as the ground is dry enough, seeds of mignonette, wall-flower, snapdragon and other hardy annuals.

Transplant seeds of annuals when the second pair of seed leaves are in course of development. Handle them carefully. Allow a small quantity of earth to adhere to the roots. Make a small hole where the plant is to go. Place the plant in this and press the soil firmly around it.

Strike in boxes of sand in the hotbed or house, cuttings of coleus, ageratum, geraniums and lobelias. As soon as they are rooted, in about two or three weeks, place them in small pots. Water thoroughly and shade for a few days. When established, place them again in the sunlight.

Canna roots may be divided, cleaned and put into boxes, upon the bottom of which should be placed a couple of inches of soil. Water slightly and expose to the light. When they have started growth, they may be repotted if so desired. Divide dahlia roots as well.

When the ground is fit, plant or trans-

plant perennials, such as peony, bleeding heart and iris. Over-grown clumps of perennials should be subdivided.

Remove the covering from the bulb beds. Avoid breaking the shoots that have come through the ground.

Prune hardy roses. Give the bushes an application of good cow manure placed around the roots.

All plants, shrubs, rosebushes, and so forth, that have been killed back, should be pruned back of the point to which the injury extends.

When all the frost is out of the ground and the weather is fairly dry, the lawn should be rolled. Trim the grass edgings evenly.

Rake and clean up the garden, lawn, walks and drives generally.

THE KITCHEN GARDEN

Every garden should have an asparagus bed. Start one this spring. Read the article on page 92.

The time for sowing vegetable seeds out-doors varies greatly throughout our Dominion with its wide range of climates. As soon as the ground can be worked nicely, sow seeds of peas, spinach, lettuce, parsnips, parsley, leeks and onions. A little frost or snow after these seeds are in the ground will not hurt them. As parsley and parsnips are slow in germinating, often taking four or five weeks, it is a good plan to sow a few seeds of lettuce in the rows with them. Lettuce will come up quickly, and will mark the rows; it will be used before the space is needed for the parsnips.

A week or two later sow beans, beets, carrots and salsify. Sow early varieties of radish and of table turnips as soon as

possible and at intervals of two weeks for a succession.

Besides growing the standard sorts of vegetables, why not try something new this year? For a greater variety, sow or plant Brussels sprouts, bush lima beans, Swiss chard, kohlrabi, endive, Chinese mustard, cress and cultivated dandelions.

WITH THE FRUITS

Grape vines that have not been pruned should be treated immediately to prevent bleeding. Should this condition occur, however, do not be alarmed because it is not as serious as most people think.

Finish pruning raspberries, blackberries, currants and gooseberries.

Plant small fruits when time for planting arrives in your locality. Have the soil thoroughly prepared and enriched.

Remove mummied fruit from peach and plum trees and bury or burn them. They indicate that the trees are infected with brown rot. Arrange therefore to spray them with Bordeaux mixture or some other good fungicide.

Remove the mulch from the strawberry bed when the plants begin to grow. If not too heavy, leave it between the rows to conserve moisture. In any case, leave enough for this purpose.

There is no feature of home gardening that is more interesting than fruit growing. If you have no fruits in the garden and have room for them, plant this spring.

Plant trees and shrubs mostly in groups and on borders of lawns.

Hardy ornamental grasses may be used with good effect in borders and in beds.



Boat Houses in the Canadian Labrador where Gardens Might be Established Through Proper Care

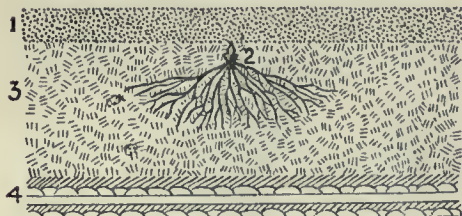
An attempt is being made to induce the fisher-folk and other inhabitants of Labrador to plant gardens. The Canadian Labrador Horticultural Mission is engaged in the work. See pages 94, 97.

Asparagus for the Home Garden

A. V. Main, Almonte, Ontario

A GARDEN is incomplete without an asparagus bed. Asparagus is one of our first outdoor vegetable dishes. A little labor and \$1.50 for plants to make a bed will be a good investment, with asparagus for years to come. The culture is simple.

Purchasing two-year-old plants from the nurserymen proves the speediest way of establishing an asparagus bed. Pal-



Cross-Section of an Asparagus Bed

1. Four to six miles of friable soil to cover the plants. 2. Asparagus plant (note spread of roots). 3. Manure and soil well mixed. 4. Good drainage (not always as well laid as in the diagram, nor is it necessary).

metto and Conover's Colossal are the standard sorts. A bed thirty feet long and four feet wide is sufficient for family use and some for charitable use or the market too. Mark off the bed; use a line on either side and trace it along with the spade.

At each side of the bed make an alley or path two feet wide. Throw the soil from the alley on to the bed, making this pathway six inches deep. The idea of elevating the bed about a foot higher than the surrounding soil is to ensure good drainage, drier in winter and spring, and this elevation gives additional warmth and compactness for an early crop. Four feet is a handy width for the work of cleaning, cutting and general routine.

Have three rows in the bed, the outside ones nine inches from the edges. The centre row will have fifteen inches on each side, which makes up our four feet. Being thirty feet in length, 100 plants will do, placing them a foot apart.

As good crops are taken from beds ten years old and even twenty years old, the work of planting is not an annual occurrence. It must be done, therefore, in a practical, thorough manner at the beginning. The soil should be of a fairly light nature, preferably a sandy loam. This must be dug and loosened two and a half to three feet deep, with an addition of manure as a basis. Be sure and locate in a dry position with a slope to the south. If the subsoil is heavy, throw it aside and lay a thick stratum of rough ashes or stones two and a half feet from the level of the bed, also a drain tile if water inclines not to move away. Some friable soil and well decayed ma-

nure for the surface should bring it to the desired height.

The roots of asparagus must not be exposed to the air. Keep them in a bag, moistened until ready. Make a good large hole for the roots and spread them out in all directions. Keep the growing crown straight and four inches of soil over it, packing it firmly. Have this done in May. If exceptionally dry weather prevails, help the growth with the watering can. Encourage the growth the first season. Support it if necessary by running a cord around the bed. Cutting the asparagus can commence the second year, each season giving it fresh vigor. How and when to cut and other factors in the care of an asparagus bed will be mentioned in next issue.

The Use of Flats in Gardening

Prof. W. S. Blair, Macdonald College, Que.

The use of "flats" or shallow boxes for starting seedlings in and for again transplanting into is becoming general with many market gardeners. There is no doubt as to the wisdom of their use in the case of the small grower or private gardener. They are easily moved from place to place, can be shifted to cold frames and finally to the open to harden off the plants before being permanently planted. It is disagreeable, to say the least, pricking off seedlings in the early spring with a northeastern wind chilling the whole outfit. If flats are used this can be done inside a building with comfort, and the time saved in doing the work under favorable conditions will go a long way toward paying for the flats. The flat can be taken right to the field at transplanting time. With very little labor the plants can be cut out with a ball of soil attached and thereby suffer little check.

There is an advantage too in the use of flats, in that less soil is required and usually more stocky plants are secured, for the roots do not have a chance to dip deeply into the manure of the hotbed, which may produce too rapid growth, developing plants rangy and weak, which suffer a severe shock when handled.

The most convenient size of flat is thirteen by twenty-two inches and three inches deep. Of course these flats can be made out of any old boxes, such as a soap box, by ripping them through and putting in bottoms where necessary. Half-inch ends and three-eighth-inch sides and bottoms make a good flat. These can be got cheaply, ready to be put together, sawn to the size required, from any box or wood working establishment. The use of planed wood,

giving one coat of raw oil with some lead in it, will pay; however, as a usual thing this is not done. There is an advantage in having the flats of a uniform size, as they can be placed to better advantage in the hotbed. One and one-half-inch resined nails should be used. In putting on the bottom boards, one-sixteenth to one-eighth-inch space between the boards should be allowed for drainage and swell of the lumber. After through with the flats allow them to thoroughly dry and place in a dry shed carefully piled up.

How to Grow Celery Plants*

F. W. Hack, Nerwood, Man.

In order to produce a good crop it is necessary to secure good plants. Many failures in celery growing are due to the use of improperly grown and carelessly handled plants. The first necessity is good seed, and the strictest attention is necessary to secure a reliable strain. Only fresh seed should be used. While celery seed will germinate freely when several years old, its vitality will be impaired, and as everything depends on vigorous growth, it is well to avoid even a suspicion of lack of vitality. Sow for early crop from middle to end of February and for main crop middle of March to beginning of April. The varieties generally grown are White Plume and Paris Golden Yellow.

The best place to raise celery plants is in a cool, well ventilated greenhouse. When only a few plants are required they may be started in shallow boxes in a sunny window. Very good plants may be grown in this way provided they are given plenty of sun. Where it is necessary to use a hotbed, seeding should be delayed until the heat is somewhat exhausted. A good depth of soil should be used and plenty of air admitted. Sow thinly in rows one and one-half inches apart. Cover one-eighth inch in depth with fine soil and slightly press down. Care must be taken to keep the soil moist, but not wet. The seedlings will appear in about fourteen days. In about three weeks they will be ready for their first transplanting.

Moving the tiny seedlings is very slow and tedious work, but it is important. The young plants will begin to be crowded in the seed beds, and if left to themselves will develop a long main root with very few side roots. The transplanting process disturbs this main root and causes the formation of numerous fibrous rootlets which, working near the surface, are better adapted to feeding the plants. The plants should be three to four inches apart or, if space is limited, they may be planted as closely as can conveniently be done, in which

*A part of an address before the Western Horticultural Society in Winnipeg last February. It will be continued in next issue.

case they should be re-transplanted as soon as they become crowded.

Some gardeners leave the plants fairly close and keep them short and stocky by repeatedly clipping the leaves. This practice is apt to exhaust the vitality of the plants and is often followed by a large percentage running to seed.

The principle to be observed in raising celery plants is to secure an even, vigorous, unchecked growth throughout. The dangers to be avoided are overcrowding, unnaturally forced growth and subjecting the plants to a moist, steamy atmosphere, often the case in greenhouses and hotbeds. Any severe check to the young plants may result in disaster by weakening their vitality, rendering them likely to run to seed and making them liable to attacks of disease.

Leaf Hopper on Vegetables

Arthur Gibson, Central Experimental Farm, Ottawa

In eastern Ontario and Quebec the ravages of the apple leaf hopper (*Empoasca mali*) to potatoes, beans and many other kinds of plants, were very serious in 1908; in fact, this outbreak was one of the most important of the year. The apple leaf hopper is a very small, slender, pale, greenish insect, about one-eighth of an inch long when mature. That year it began to make its presence known towards the end of June, by causing the leaves of the attacked plants to curl up and turn brown. The injury is done by thousands of these small insects sucking the juices from the leaves and stems of the plant, which very soon blackens and fades.

The young leaf hoppers do not get their wings for some little time after they hatch from the egg. It is during this stage that most of the harm is done, and this is the only time when a remedy can be applied with much success. Potatoes which were sprayed at the Central Experimental Farm with whale oil soap, one pound in five gallons of water, or with the ordinary kerosene emulsion, early in July, before the young leaf hoppers had acquired their wings, were freed from the pest and not since injured to any appreciable extent. As these insects feed on the lower side of the leaves, it is necessary in order to reach them with a spray, to attach a nozzle to a short joint of pipe about a foot long, having an angle of about forty-five degrees in it. The severity of the outbreak of this insect in 1908, was doubtless much aggravated by the exceptional drought and heat, which weakened the plants and made them more than usually susceptible to injury.

The ideal location for a cranberry bog is one that imitates natural conditions as far as possible and enables the grower to have the greatest control over late frosts in spring and early frosts in fall.

Tomatoes in Western Home Gardens

Brenda E. Neville, Cottonwood, Saskatchewan

THE hotbed for tomato plants should be made just as for raising other seedlings—a couple of feet of strawless horse manure well packed, covered with nearly six inches of light sandy loam, very fine. Water well, cover with glass, and leave for a few days until the weed-seeds start to grow. It will be safe then to set in the tomato plants.

Rake the surface of the bed well to kill all weeds that have started. Slip the plants carefully from their pots, and set them quite deeply in the soil of the hotbed, placing water about each root

again, choose a cloudy day if possible. If a cloudy day does not come, never mind. Lift each plant carefully, and set in garden, deeply, so deep that only the top shows. Do not leave a bare stem above the ground, no matter how long it is. Fill the hole the plant stands in with cold water. Fill in with earth, leaving the soil loose on top. If the sun is very hot a little shade may be given beneficially, but I have set plants out in this way without shade, and had them do nicely.

Watch your plants, and when the second bunch of flowers opens on each branch, nip off the rest of the branch above the flowers. I would say nip off all but the first bunch of flowers only sometimes the first bunch does not set fruit. Do not prune the side branches off. It leaves the plant too much exposed to the winds which prevail here. But keep the ends nipped closely.

Do not water after transplanting; and do not cultivate deeply. It induces too rank a growth, and the fruit will not ripen.

Following the above method, a small crop of ripe fruit may be gathered most seasons; and a large crop of nearly ripe fruit may be picked and stored away in boxes of bran, where they will ripen slowly after the plants are frozen outdoors. Tomatoes mature slowly here because our nights are so cold even in the hottest weather.



Branch of Dwarf Giant Tomato

Grown by Mr. E. A. Sanderson, Dauphin, Man. Seventeen tomatoes averaged fourteen ounces each.

as before. The plants should stand six inches apart each way in the hotbed. After planting, sprinkle the whole bed lightly with cold water. Cover with the glass, and shade the bed if the sun is hot, by spreading over it an old blanket, or a length of burlap. Shade will only be required for a day or two, after which the sun will do no harm.

On hot days the glass should be raised a little to admit air. As the plants grow they should be given all the air possible without chilling them. Accustom them gradually to the wind. Long before time to set them in the open garden, the glass may be removed all day. Standing so close together the wind will not break the plants easily, and they will become tough and hardy.

It will not be safe to set them in the garden until after the first full moon in June. We usually have a light frost then. When the nights grow warm

Profit in Potatoes

At the convention of the Western Horticultural Society held at Winnipeg in February an address was given by S. R. Henderson of Kildonan, Man., on "Potato Growing." Mr. Henderson pointed out that even at the low yield of 192 bushels an acre, given as official returns for the average yield of the province, potatoes at 35 cents a bushel were a paying crop. He emphasized the necessity for the use of good seed, good cultivation and good land and estimated the profits on one acre as follows:

COST OF PRODUCTION

Seed, 20 bus. @ 50c.....	\$10.00
Plowing	2.50
Harrowing	2.00
Cultivating	2.00
Hilling	1.00
Hoeing	4.00
Digging	5.00
Marketing	16.00
	<hr/>
	\$42.50

PROFIT

Yield, 250 bus. @ 35c.....	\$87.50
Less cost of production	42.50
	<hr/>
Profit for one acre	\$45.00

The Canadian Horticulturist

Published by The Horticultural
Publishing Company, Limited
PETERBORO, ONTARIO



The Only Horticultural Magazine in the Dominion

OFFICIAL ORGÁN OF BRITISH COLUMBIA, ONTARIO
QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD
ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director
A. B. CUTTING, B.S.A., Editor

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.
2. Subscription price in Canada and Great Britain, 60 cents a year; two years, \$1.00. For United States and local subscriptions in Peterboro, (not called for at the Post Office) 25 cents extra a year, including postage.
3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than \$1.00.
4. Change of Address.—When a change of address is ordered, both the old and the new addresses must be given.
5. Advertising Rates quoted on application. Copy received up to the 18th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.
6. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT.

Since the subscription price of The Canadian Horticulturist was reduced from \$1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with Dec., 1909. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Some months, including the sample copies, from 10,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

January, 1909.....	9,456	January, 1910.....	8,925
February, 1909.....	9,310	February, 1910.....	8,967
March, 1909.....	9,405	March, 1910.....	9,178
April, 1909.....	9,482		
May, 1909.....	9,172		
June, 1909.....	8,891		
July, 1909.....	8,447		
August, 1909.....	8,570		
September, 1909.....	8,605		
October, 1909.....	8,675		
November, 1909.....	8,750		
December, 1909.....	8,875		
Total for the year.....	107,638		

Average each issue in 1907, 6,627
" " " " 1908, 8,695
" " " " 1909, 8,970

Sworn detailed statements will be mailed upon application.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

HORTICULTURE IN LABRADOR

The work that is being done by the Canadian Labrador Horticultural Mission should be encouraged and supplemented by the establishment of a small experiment station in that locality supervised by the government. The work assumes national import when it is realized that the possibility of growing vegetables will revolutionize the dietary of the whole Labrador coast and rid the fisher-folk of scurvy and many other dread diseases.

During a series of lectures given in various Canadian cities last year, Dr. Grenfell stated that gardens will flourish in many parts of Labrador. Miss Edith Mayou, superintendent of the Deep Sea Mission Hospital at Harrington Harbor, has been successful in introducing the work. (See pages 91 and 97). The selection of varieties must be done with the greatest care and other problems peculiar to the locality will have to be studied. The work goes beyond the accepted idea of mission work. It is a question of outstanding importance. The Dominion government should give the matter serious consideration. A small station for testing varieties and for general investigation work in determining the horticultural possibilities of the Canadian Labrador would most likely result in inestimable benefit to our fellow citizens in that far-away corner of our great Dominion.

THE SOCIETIES' GRANT

The increase in the grant to horticultural societies in Ontario does not meet the need. While the societies are thankful for small mercies, they expected and require a larger increase than \$2,000. This amount is inadequate. When divided among the societies each one will receive an amount that is insignificant when compared with the great growth in membership and in work that has taken place and which still continues.

The horticultural societies are deserving of greater support. They are producing results in their work that are not duplicated by any other similar organization. Their efforts, which are voluntary and not for commercial purposes, mean more than the government apparently appreciates. Each society in the province should impress these facts upon its local member of the legislature so that they will be prepared to grant an increase next year that will be worthy of the cause.

EXPERT GARDENER NEEDED

In the department of agriculture at Toronto there should be an expert on landscape gardening. This suggestion was made on various occasions by the late Mr. J. S. Pearce, then superintendent of parks for London, Ont., and was brought to the attention of the government through these columns about two years ago. It was discussed at the time also by the Canadian Horticultural Association. There is a general feeling among florists, private gardeners and home-makers that such an appointment should be made.

A Provincial Landscape Architect could be of great benefit to the province. His duties could include the planning and planting of the grounds surrounding public buildings and in public parks. His advice would be sought by municipalities and by individ-

uals and would result in a great change for the better in the appearance of our towns and cities. The announcement of the appointment of a Provincial Landscape Architect would be received with pleasure by all persons that are interested in the improvement of Ontario homes and public places.

ADVERTISING VEGETABLES

In the growing of fruits and vegetables, business methods are as necessary as in any other line of commercial effort. One of the first considerations is to let people know what you have to sell. To do this best and quickest, advertising should be done in the local press. To some growers, the idea of paying for space in a newspaper is something to be shunned. Why should it be? There is no reason why market gardeners should not announce in the papers daily what they will have on their delivery wagons the following day. Try it and see. Do not start to advertise unless you intend to follow it up.

When writing the advertisement, be original. The statement that "John Jones Grows the Best Vegetables in this Locality," will not bring marked results. Be seasonable. Tell about one thing at a time. Always use the same position in the paper, even if it costs a little more money. Back your statements with a superior product and you will soon become convinced that it pays to advertise.

THE FARM ORCHARD

In spite of the fact that fruit growing is one of our most profitable industries, most farm orchards are neglected and a disgrace to the country. There are more uncared for and unprofitable orchards in Canada than profitable ones. It is the one department of most farms that receives no thought and no attention. If this class of farmer realized what the orchard can do for him and had his best interests in mind, this condition of affairs would not be. No part of the farm can be made to yield a greater return per acre. Every dollar expended upon the orchard, in money, time and labor, will return to the owner two dollars and, in many cases, much more. In the orchard, even old ones, there is an opportunity for gain that few farmers recognize.

To renovate an old orchard all the operations in up-to-date fruit growing should be practised. There is no half-way mark in orchard management. The older and more neglected the orchard is, the more necessary it is to undertake its rejuvenation in a whole-hearted manner.

If it is on poorly drained land, it should be tile-drained; main drains alone run through the depressions would improve matters. Assistance in money and in planning the drainage scheme may be had in Ontario from the government. It is not always practicable to drain old orchards, however, as the roots interfere with the work. Land for new orchards should be thoroughly drained before planting, either naturally or mechanically.

Most orchards are sod-bound. Plow them early this spring and cultivate every two weeks or so until mid-summer. Then sow a cover crop of clover. The results in vigor and healthfulness will be surprising.

Have the trees been pruned properly and regularly? In most cases the answer is "no." Start to get them into proper shape right away. If long neglected, do not be too severe the first time. Take out about one-third of the large limbs that overcrowd and thin out the smaller ones all around the outside of the tree. Next year and the one following complete the removal of un-

necessary large limbs and continue the pruning of small twigs then and every year afterwards. Read the articles on pruning that appear in this magazine.

How often has the orchard been sprayed? "Never!" Well, commence now. No work in orchard management pays better. In some seasons, spraying means the difference between ten dollars and one dollar or less on one tree.

When all these things are put into practice, the orchard will take a new lease of life. Try it and see. Do not put it off. Hundreds of farmers have done this and are making money that at one time they did not believe possible. They have made new orchards out of old ones. If you have an orchard, you can do the same. If you haven't one, buy trees and plant. It pays to grow fruit.

PUBLISHERS' DESK

The March issue of THE CANADIAN HORTICULTURIST was a record breaker in many ways. It was not only the largest issue that we have ever published, but it contained the largest number of columns of advertising, the value of the advertising was the greatest, there was the largest number of individual advertisers, and also the largest number of new advertisers, of any single issue. This not only shows that our old advertisers are still using the paper and that it brings results for them, but that new advertisers in large numbers are beginning to find that THE CANADIAN HORTICULTURIST is a paper that appeals to the class of people whom they wish to reach.

As this page is one of the first to go to press, we are unable to give any definite information regarding the April issue, but from indications as our first forms go to press, the April issue will be another "largest ever." What better evidence can we give that THE CANADIAN HORTICULTURIST is "making good" with its advertisers?

If this catches your eye, Mr. Advertiser, who is not advertising in THE CANADIAN HORTICULTURIST, why not let the experience of other advertisers guide you and plan to use space in the May issue. It will be a good one. Forms close April 20th.

In the article on "The Preparation and Use of Concentrated Lime-Sulphur," by Prof. J. P. Stewart, that appeared in our March issue, all references to gallons on page 53 are in wine measure. Five gallons in this measure equal approximately four gallons Imperial, the

measure used in Canada. In the table on page 69, it should also be stated that the treatment for plant lice is not always as successful as might be desired.

What is a Crab Apple?

In connection with this question the illustration that appears on this page is particularly interesting. Mr. R. A. Marrison, of Cataragui, Ont., from whom the specimens were received, states that this seedling has been accepted by consumers, by nurserymen and by professional horticulturists as a crab-apple. He writes:

"Our customers always pay us double the price that they could buy any other crabs for, and they always remember to ask for them the next season. We have not had the slightest difficulty in having them accepted as crabs. They are extra good keepers for crabs."

"An apple grower could probably point out the tree as a crab at 100 yards distant, if it were growing in a row with other apple trees. It looks like a crab tree, and its crab leaves are nearly as large as a man's hand—perfect crab tree leaves."

In the report for 1905 of Mr. W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa, this apple is described, under the heading "New Fruits," as follows:

"Seedling crab apple.—Fruit large for a crab; two by two and one-half inches; form, roundish, slightly angular; cavity, medium depth and width; stem, long, slender; basin open, medium depth, much wrinkled; calyx, closed; color, yellow, well washed with deep crimson and splashed with dark crimson; dots few, yellow distinct; skin, moderately thick, moderately tough; flesh, yellow, tender, juicy; core medium; briskly subacid; pleasant flavor, very little astringency; quality, good for a crab; season, probably early to mid-October. A handsome crab of the largest size. May prove desirable as a late variety."

Since Mr. Macoun wrote the above description and after he had examined more specimens, he stated in a letter to THE CANADIAN HORTICULTURIST that, in his opinion, the introducer would have difficulty in getting this apple accepted as a crab apple. This is the opinion of THE CANADIAN HORTICULTURIST. The size of the fruit alone would place it outside of the list of crabs. Furthermore, its origin is obscure, it being a chance seedling. Mr. Marrison says:

"I have always believed it to be a seedling of the Snow apple, as it came up where a lot of refuse from Snows had been thrown; but some specimens of its fruit grow larger than that variety."

The case of this seedling further emphasizes the need for a definition to distinguish between apples and crab apples. What do the readers of THE CANADIAN HORTICULTURIST think of this case? More expressions of opinion on the general question are invited. Note the following from Mr. W. M. Robson, of Lindsay, Ont.: "The question, 'What is a crab apple?' is a startling announcement, notwithstanding the present advancement in the science of pomology. It is a strange anomaly that necessitates some authentic answer to its identity. Of late, several seedlings from apple parentage of a size that would scarcely command recognition as an apple of merit, yet, being insidiously merged into the crab apple family, have become a prodigy in this class. Thus, subject to the whim, or caprice of the individual, their propagation (and questionable accuracy) is continued, resulting in the confusion of species."

"After more than 50 years of apple culture in Ontario, with its several colleges, each having its chair on Pomology and Horticulture, not to mention the numerous auxiliaries by way of horticultural societies, lectures, conventions, and demonstrations—all intended to aid and disseminate the principles and essentialities of fruit-growing including kinds, qualities and correct nom-



Two Specimens of a Seedling Crab Apple, "Phenomenal"—Actual Size—The Largest and the Smallest that the Tree Bore Last Season

The question, "What is a crab apple?" that has been discussed in recent issues of THE CANADIAN HORTICULTURIST, was first asked on the receipt last fall of a number of apples of various kinds, which were claimed by the senders to be crab apples. The specimens from which this illustration was made were among the number. The apples measured in circumference $10\frac{1}{2} \times 9\frac{1}{2}$ and $8\frac{1}{2} \times 8\frac{1}{2}$ inches respectively. They were sent by Mr. R. A. Marrison, Cataragui, Ont.

enelature—it is a sad comment on the times and our boasted system to have to ask the question: 'What is a crab apple?'

"The answer of the interested majority would probably be that it is an apple in a class by itself, minus its distinctive characteristic undefined by an acknowledged authority. Others may define it as a species without an authorized formula to distinguish its identity at present.

"Personally, I consider that the crab apple merits a better fate than that of being assimilated out of recognition by the invasions of different species. Surely its unique character as a preserving and ornamental fruit and also its fame as the parent of illustrious progeny, should entitle it to a place worthy of protection from the fate of obsolescence.

"Then, if such a condition exists it ought to be a sufficient incentive for anyone to ask for an investigation by a competent person in the college, who will give to patrons and the public the component characteristics, properly formulated, of the crab apple."

Canadian Apple Show

Editor, THE CANADIAN HORTICULTURIST: I noticed in the editorial columns of your February issue some remarks regarding the holding of an annual apple show in Canada along lines similar to the one held in Spokane, Wash., that has been attracting so much attention, and undoubtedly been productive of much good. The addresses and discussions in connection with the Spokane Show have infused new blood in the apple growers of the west and have helped very much to produce that exceptionally fine fruit, and the up-to-date methods practised in cultivation, pruning, thinning, packing and marketing.

During the past apple harvesting season, I was privileged to spend some time in the

principal apple sections of British Columbia and everywhere would you hear reference made as to the valuable lessons and the information learned at Spokane. Preparations were then being made to attend the 1909 show as well as have their products on exhibition, where subsequently, British Columbia again captured a share of the prizes.

The object lessons there learned together with the talks by practical men along all lines, from the growing of the trees in the nursery to the marketing of their products, are looked upon as of inestimable value. It has done much good towards educating British Columbia apple growers, and placing them in many respects in advance of us conservative Ontario apple growers. While some of the methods there practised, on account of the different climatic conditions, would not be practicable here, there are however, many lessons we could learn from them to our advantage. The western fruit, being so much superior in general appearance, uniformity, shipping and keeping qualities, with the careful grading and packing, accounts for the good prices they are able to secure.

In view of these facts, it would be useless for us at present to attempt to compete with them at an apple show. Our apples and some of our other fruits are superior in flavor to western grown fruit, but in appearance and keeping qualities the west has the advantage. The all important matter that confronts us is to grow a better class of apples and I am satisfied we can do so if we go about it right. The sooner we get out of the old rut, allowing our trees to overbear and produce a large quantity of apples that are valueless for market and really so few that are strictly No. 1, will the apple industry of Ontario take on new life and prove remunerative as it has in the west. We will then again be pro-

ducing apples, even vastly superior in uniformity and appearance with the aid of modern methods, to the choice apples that were grown here years ago before the insect and other pests were in our midst. Then, too, being free of fungi, they will possess much better keeping qualities.

What we need is an annual Ontario apple show and convention. There is no province in Canada capable of such vast expansion of this industry, adapted for growing good flavored apples and capable of producing a variety in the various localities from the early to the late or winter varieties. Therefore, we should consider the advisability of holding such a show and convention to develop this industry. By the object lessons and instructions imparted, such a show would be the means of arousing an increased interest and leading the way to develop this important, but much neglected industry.

Canada has the ideal climate to produce the best apples and wheat in the world. Let us see to it that we put on the market the best products it is possible for us to produce. We should never rest content to leave good enough alone, but press forward for something better.—W. B. Rittenhouse, Beamsville, Ont.

[NOTE.—That better provincial shows are needed before we undertake to hold a national apple show is evident. Mr. Rittenhouse's suggestion that an annual apple show and convention be held in Ontario is already an established fact in the Ontario Horticultural Exhibition and the annual meetings of the Ontario Fruit Growers' Association. It is planned to develop this show along similar, but more restricted, lines to that of the Spokane show. If fruit growers of Ontario give it their best support, it will become the extensive and influential show that Mr. Rittenhouse suggests.—Editor].

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View of Hydrangeas in our Nursery at Pointe Claire

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are prominent characteristics of our stock. Our trees and plants are well grown. Note the width between the rows in the illustration and the bushy well-developed plants. Our aim constantly is to grow nursery stock of the best quality. A trial order will convince you that our stock is the best that grows.

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- ☞ To destroy leaf eating and chewing insects, such as the Codling Moth, Canker Worm and Curculio.

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Why You Should Use Grasselli Arsenate of Lead:

- 1st. Because it is a poison made by chemists whose business it has been to make high grade chemicals over 70 years.
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ST. CATHARINES, ONT.

OR SEND ENQUIRIES TO US

THE GRASSELLI CHEMICAL COMPANY
CLEVELAND, OHIO

Use Best Seed for Gardening

A. V. Main, Almonte, Ont.

Do you want to have a good garden this summer, a better one than last year? If so, in the first place, procure good, reliable seed from a reliable source. Where can such seeds be purchased? I have sown seed from all the noted firms in Great Britain where they specialize and have extensive trial grounds. Yet, I have had failures with seed not germinating.

You can't condemn a seed firm if some packet has given a poor percentage. Much depends on the treatment, temperature moisture and depth of sowing for success with seeds. The individual or grower is largely in control of the seed proving good or bad. Because your neighbor has a better tomato crop than you have, the blame is laid on the seed, although it may be the same seed.

A firm that wilfully sells useless seed can never survive long. One fault is that too many dabble with seeds. In small towns, you find seeds displayed in almost every store. It is surprising that reputable seed houses that supply these off-shoots, as it were, do not have a better system. One agent in small towns and villages is surely representative enough for one firm.

I have found Canadian seed firms to furnish seed equal in quality and high percentage of germination to any house of fame in Great Britain. A large quantity doubtless comes from there and other countries. However, the seedsmen in the Dominion have the right article in stock and it is adaptable to the climate. I have experimented with several vegetable strains from the Old Land, but find them entirely secondary to Canadian sorts.

In Canada we should have great trial

grounds and produce more of our own seed. There is no gainsaying the fact but that seed matured, harvested and carefully selected in this country would naturally be better acclimated than the foreign product. Nevertheless, we are more or less dependent on our neighbors for supplying our wants in this particular line as well as in many others. Farmers and gardeners that read THE CANADIAN HORTICULTURIST should send direct to those seedsmen that use the columns of this paper as their advertising medium. It is just as economical and more profitable than local purchases.

Leading seed firms test all their seeds before sending them to their customers. A sample of each sort is sown in pots or boxes in their glass houses. If it fails to give a satisfactory germination, it is not put on the market; thus, the customer cannot find fault with the purity of the seed. We should give our support to the Dominion seedsmen, and they should be encouraged to give more attention to the extending of trial grounds, hybridizing and the selection of adaptable varieties suitable for the different parts of the land.

Gardeners themselves ought to experiment more and find the strains that give the best results in their own locality. The garden is too often subjected to random treatment; likewise, many orchards and farms. It is being felt more keenly every year that a random, haphazard, careless management of crops is ruinous and detrimental and cannot stand the rivalry of up-to-date methods.

"The Man With The Hoe," is the name of an interesting little booklet prepared by the Bateman Mfg. Co., makers of the Iron Age Tools. Free copies may be had by writing to the above company at Box 516-G Grenloch, N.J., and mentioning this paper.

Horticulture in Labrador

Last year an attempt was made to grow vegetable and flower seeds in the Canadian Labrador and success attended the effort. In a letter to a lady in London, Ont., a year ago last spring, Miss Edith Mayou, Superintendent of the Harrington Hospital in the Canadian Labrador, stated that the dietary of the fisherfolk might be improved by growing vegetables for food. The suggestion was referred to Mr. Emery B. Hamilton, London, Ont., an expert in regard to seeds, etc., and was taken up enthusiastically by him. Previous efforts to grow satisfactory vegetables had failed in the Canadian Labrador, but his selection of the hardiest early varieties which were sent by the last boat last year, brought forth most satisfactory returns. Only some \$30 contributed by sympathizers who were willing to expend the amount on an experiment that did not seem to be promising, were at the disposal of those in charge. The entire amount was used for seeds, leaving no surplus for tools. Only crudest tools were used by the inhabitants of the Larran coast who made rakes by driving long nails through a bar of wood and manufactured watering-cans by punching holes in tomato cans. Those who had the ambition to make the effort were well rewarded.

Last fall a horticultural exhibition was held and tools necessary for gardening distributed for prizes. The exhibition was a success. The work will be extended. As it is supported entirely by subscription and being in connection with the great mission of which Dr. Wilfred T. Grenfell is the head, contributions will be gratefully received. Address, Mr. Emery B. Hamilton, chairman, Canadian Labrador Horticultural Mission, 546 Wellington St., London.

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Ontario Vegetable Growers

The annual meeting of the Ontario Vegetable Growers' Association was held in Toronto on Feb. 8, with the president, T. Delworth, Weston, in the chair. The following directors were present: F. G. Fuller, London; F. Whitehead, London; E. H. Titterington, St. Thomas; J. W. Rush and James Dandridge, Humber Bay; C. H. Weaver, Dunnville; G. H. Pood, London; R. H. Lewis, Hamilton; C. W. Baker, Byron; J. Dugal, Tecumseh; Geo. Syme, jr., Toronto; Wm. Broughton, Sarnia; T. A. Newton, Woodstock; F. F. Reeves, Humber Bay; and the secretary, J. Lockie Wilson, Toronto.

The financial statement showed a balance on hand of \$53.12. It was decided to hold the next convention in London during the time of the Western Fair. The matter of changing the name of the association was left in the hands of the executive. A motion to assist the Dunnville branch in getting express rates on vegetables readjusted was carried.

The need for a revision of standard weights of vegetables was brought up by Mr. Rush, who suggested the following as fair: Parsnips, per bush, 45 lbs.; carrots, 50 lbs.; beets, 50 lbs.; artichokes, 56 lbs. As the standard now is 60 lbs. for all and commission houses buy by weight the result is a loss to the grower. Potatoes should have a standard of 75 lbs. instead of 90 lbs. as they are frequently sold in sugar bags which only hold one and one-quarter bushels and weigh 75 lbs. The executive was instructed to ask the Dominion government to fix the above standards for vegetables.

Officers were elected as follows: Pres. T. Delworth, Weston; 1st vice-pres., F. G. Fuller, London; 2nd vice-pres., T. A. Newton, Woodstock; executive committee; T. Del-

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and

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Have you found suitable varieties for your soil and section?

The beginner should make his trials wide to arrive at this.

Professionals should bear in mind the best variety is always moving forward.

A trial patch is very interesting, and inexpensive, and leads to improvements that increase the effectiveness of one's work for all time.

I have some of the best varieties of both these fruits.

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The money saved in growing your own vegetables and flowers, saves the cost of the beds the first year. Our Hot Bed Sash are built to last. All the joints are tight fitting, blind mortised and white leaded before being put together. A $\frac{1}{2}$ inch oak rod runs through the bars and into the stiles. A metal pin is driven into each of the bars and stiles through the rod. In this way each bar is held in its proper position and prevented from sagging.

A trial order will convince you that our sash possess the greatest possible strength and durability.

Hot bed folder mailed on request.

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GLASS, FOR BUTTED OR LAPPED GLASS**

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With or without fertilizer attachment, opens the trench, drops the seed, covers it, and marks for the next row all in one operation. Does not bruise or mar the seed in any way. One man and team can plant from 4 to 6 acres per day.

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always do exactly what you expect of them. For sale everywhere. **FERRY'S 1910 SEED ANNUAL** Free on request.
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worth, J. Lockie Wilson, F. F. Reeves, C. W. Baker and C. H. Weaver; directors on Ontario Horticultural Exhibition, F. F. Reeves, Thos Delworth, Geo. Syme, Jr. and J. W. Rush.

Hon. J. S. Duff, Minister of Agriculture, who was present, expressed his willingness to set aside a portion of the Driftwood Experimental Farm for experiments with potatoes so as to determine the most suitable kinds for seed.—G.

Improving Vegetable Varieties

Fred Collins, Chatham, Ont.

Out of the host of so-called new varieties of vegetables that appear annually, I do not think that many show very decided advancement. The man that accepts the optimistic descriptions in the seed catalogues is doomed to much disappointment. I am more in favor of improvement of the very excellent varieties we already have by a system of plant selection. Take for instance, the Earliana tomato. In my estimation, it is the best early tomato we have but it has many defects, among which are a hard green stem and an irregular shape. My plan is to select a plant which produces fruit freest from these defects and keep all the fruits for seed. It would be better to cover the vine in some way to prevent cross fertilization, but I do not take that much trouble and I have a very much improved Earliana tomato.

One of the great difficulties I have to contend with is to buy pure seed of good germinating quality. Last year, I bought muskmelon seed from one of our leading Canadian seedsmen and it was so mixed that it was difficult to get a dozen fruits of one variety. I also bought parsnip seed from the same firm, and, after making two sowings, I had not one parsnip for my table.

Send me your order for

STRAWBERRY PLANTS

Good plants that will grow

I have the following choice varieties:

ABINGTON	PRIDE OF MICHIGAN
AMOUT	PARSONS BEAUTY
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Spraying must be done at a busy time. Our pumps are made for busy men. They don't break down when most needed—when a few days' delay means the loss of your entire crop. No time lost in repairing—the farm hand finds they work easier than any he ever heard of.



This cart sprayer has 24 gallon tank, and strong, well built barrel pump with submerged cylinder.

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Are without doubt, the best spraying apparatus on the market. Experiment Stations recommend them. Governments use them. Practical fruit growers would not be without them.

Our Catalogue and Spraying Chart, giving full particulars regarding more than twenty styles and sizes of hand and power spraying machines for all spraying operations, will be sent you on request by:—



"Samson" double acting sprayer. Note tremendous leverage and great capacity.

J. A. SIMMERS, 147-151 KING STREET EAST Toronto, Ont.
Or **BLACKIE BROS.,** Halifax, N.S.

NOTES FROM THE PROVINCES

British Columbia

At the convention of the British Columbia Fruit Growers' Association held at Victoria in February, Mr. W. E. Scott, deputy minister of agriculture, gave an account of his experiences in England, where he went in charge of the British Columbia fruit destined to be exhibited there. He stated that there is a market for A. No. 1 fruit only, but none other pays to ship. The highest price he obtained on selling boxes of apples that had been on exhibition there was for Spitzenberg, from 10s. to 12s. 6d., a box. Freight costs \$1 a box and as ordinary No. 1 pack would bring but 8s., there are better markets nearer home.

The cry is for a big red apple and Jonathan, McIntosh, Spitzenberg, and King are recommended as the best varieties for this market. He gave a warning against planting too many trees of Cox's Orange as they were not the most satisfactory.

Exhibitions were made at 24 different places, each exhibition lasting from two days to a week, and much good has been effected. The fruit obtained 22 medals, as follows: Nine gold, three silver gilt, nine

silver and one award of merit. All this was in addition to a Royal Horticultural Society's gold medal.

"Two important questions," remarked Mr. Scott, "have to be solved before we can cater to the better class settler; the first being land clearing on a financial basis, and the second, the question of labor and domestic service." The acute want now is to obtain suitable girls for domestics and he suggested that the Government establish a home for these and some financial assistance until places could be bound for them. —W.J.L.H.

Vancouver Island, B. C.

F. Palmer

With the exception of a few days' cold or wet weather now and again, fruit growers were able to work in their orchards throughout the winter. Shortly after the fall spraying of lime-sulphur solution was over, pruning was commenced and was carried on briskly during all fine weather.

For spring spraying a few growers intend to use the lime-sulphur solution, but the

majority are in favor of an extra strong Bordeaux solution, aiming to kill the aphids and red spider eggs that were missed in the fall spraying of lime-sulphur.

Mr. R. M. Winslow, provincial horticulturist, gave a series of spraying demonstrations and lectures in the different fruit growing sections of the island. At the meeting, which were all well attended, the afternoons were given over to spraying demonstrations proper, and the evenings to lectures on various spraying mixtures, pumps, nozzles, etc. This is the first work of its kind that has been attempted on Vancouver Island and it will result in the fruit growers having a more intelligent idea of spraying.

Prices on Vancouver Island

W. J. L. Hamilton

Since I have contributed to THE CANADIAN HORTICULTURIST, I have had many enquiries from subscribers as to prices of fruits, etc., in this locality; so, perhaps a few words on these lines may prove of interest. I must premise, however, that this district tributary to Victoria is an ideal country for the fruit industry, so the prices I quote are only those of which I have personal experience, and might prove misleading in other parts of the province.

Apples of good varieties, from 10 to 12 year-old trees, should bring in about \$200 an acre net. Pears are less profitable, also plums, whilst cherries and prunes bring rather more.

Strawberries rule at from 8 to 10 cents for main crop, with fancy prices for a limited number early in the season. The net profit per acre is in the neighborhood of \$400., whilst red raspberries, loganberries and blackberries bring some \$300 an acre, ranging from six cents for canning up to 10 cents in crates.

Currants are not in much demand. Gooseberries are, but, as their price fluctuates, they are not so staple a crop.

Asparagus is worth 8 to 10 cents a pound and rhubarb averages about three cents.

Transportation facilities are improving and great changes are projected; so, the land values will soon jump. In fact, the value is steadily rising all the time, and will continue to do so, as once the land rises to a price prohibitive to profitable horticulture, the wealthy man steps in and pays a long figure for it for a home, for the climate is ideal and the surroundings of great beauty.

This is partly the secret of the town of Victoria proving such a good market, as it is just the place for a man with a love of beauty who has "made his pile" to end his days in and enjoy the years still left him.

Manitoba

David Alexander, Oakville

I have about 45 crab apple, three standard apple and six plum trees all doing well. Most of the crab trees have been bearing for seven or eight years. These are the only ones in the district that I know of that are doing well.

Mistakes are made by not having the ground properly prepared by summer fallow, in not digging a large enough hole for planting and in putting the subsoil back around the roots instead of good surface soil. When planting, the top requires to be severely cut back, then give good cultivation for at least the first three or four years which gives the trees strength and allows them to mature for the winter.

My trees have very little protection, although I think it would be advisable. I allow the trees to grow to a full top, except

Edison Talent making Records for you

In what other way can you hear so cheaply and so comfortably such an array of talent as that engaged in making Amberol and Standard Records for the Edison Phonograph.

To mention only a few of these star entertainers, whose records are the joy of thousands, there are:

Mabel McKinley	Grace Cameron
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There are several good records from each of these and a hundred others that you can hear at the dealers and own and hear in your own home for a trifle.

Edison Standard Records	40c.
Edison Amberol Records (twice as long)	65c.
Edison Grand Opera Records	85c.
Edison Phonographs	\$16.50 to \$162.50

There are Edison dealers everywhere. Go to the nearest and hear the Edison Phonograph play both Edison Standard and Amberol Records and get complete catalogs from your dealer or from us.

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cross branches. Fruit growing would be a greater success in the province if agents selling would give a few instructions or have some information in pamphlet form to go with stock.

New Brunswick

The appointment of a provincial horticulturist and the appropriation of \$2,500 for the encouragement of horticulture is certainly a step in advance and indicates a real desire to get something done. Three new illustration orchards are to be set out this spring and the old ones will receive closer attention than it was possible to give them in the past. The horticulturist has

already visited three illustration orchards, and three orchard meetings and two evening sessions were held in Charlotte county, the week ending March 5th, at which special attention was given to the renovation of old orchards and the home fruit garden. The balance of the illustration orchards will be visited before growth starts and pruned, and again in June when demonstrations of planting, pruning and spraying will be given and general orchard practice discussed.

The Fruit Growers' Association is planning an active campaign and have already doubled their membership. Efforts will be made to hold a record-breaking apple exhibit and three days' convention in St. John about the first week in November with a

view to attracting wide-spread attention to our fruit growing possibilities. It is expected that 1910 will prove to be a very important one in the history of New Brunswick fruit growing.

Prince Edward Island

J. A. Moore

The Wealthy is perhaps the apple best suited to Prince Edward Island if it is given a favorable location and is properly handled. It needs a well sheltered spot, for when it is ripe it will drop easily, but will hold on the tree till the first week in October.

It is ridiculous for any man to try to get



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DON'T you think that fact almost speaks for itself? There hardly seems much left to say. No better evidence could be demanded—or given—of the absolute perfection of every instrument turned out by us. For a long time past we have had our best engineers at work on the problem of designing a more powerful Farmers' Line Telephone. And now we have it. The work was completed months ago, although it is only now that we are offering it to you. The interval has been devoted to "trying out" these new sets under the most exacting conditions it would be necessary to meet anytime—anywhere.

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Take the transmitter—into which you talk—you will find it the standard long-distance type.

Then there is the receiver—the ear-piece; it is simply perfect—never will you be bothered by local noises to spoil transmission. The result of long and careful study, it is the best possible construction and combination for the purpose.

The generator has also been well worked out—so well, in fact that this generator is stronger than any other telephone generator on the market. Observe how easily it turns. It will ring more telephones on a longer line than any other 5-bar generator made to-day. Thousands of these generators are now operating on lines more than 30 miles long with as many as 40 telephones on the same line.

The ringers and gongs are unusually efficient. Our new type 38 ringer is not

only very sensitive, but very strong and operates on from only one-third to one-fourth of the current ordinarily required. The extra large brass gongs produce a volume of noise fully half as great again as gongs on other sets. You'll never fail to hear this telephone when it rings. The switch hook makes all contacts on the best grade of platinum points—that makes for efficiency.

Taken as a whole, Set No. 1317 is an extremely handsome and serviceable instrument. The woodwork is of quarter-sawed oak of finest quality and handsome finish. And in point of service this telephone is unsurpassed—More than \$10,000 was put into it in engineering expense alone before the first instrument was made. Would you like to know more about it?

The space here won't permit us to tell you, but if you will write, we'll gladly give you any information you may desire. Address your nearest office.

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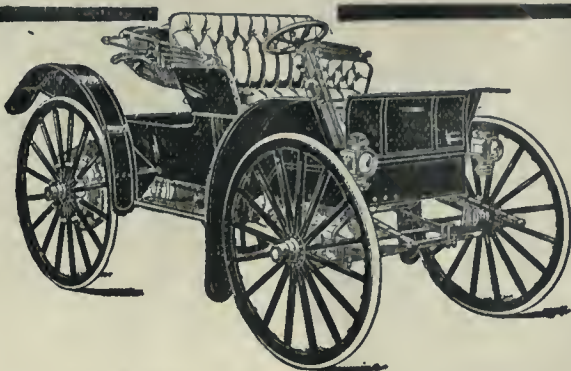
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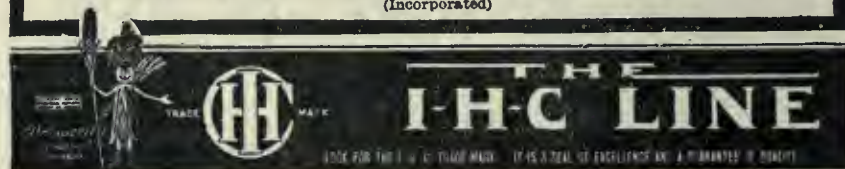
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it is the most sensible, serviceable vehicle. If your wife and children want to go to town or on a pleasure trip it doesn't mean taking a team from the work in the field if you own an I H C auto buggy. The International auto wagon has the same engine construction as the auto buggy. It will meet your requirements for a light delivery wagon. The full elliptic springs (36 inches long by 1 3/8 inches wide) and the long wheel base make it easy running and give it a stylish appearance. See your local dealer or write the International Harvester Company of America at nearest branch house for further information.

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good results in growing apples if he has not a good windbreak most all around his orchard. Part of this shelter could be made with cherry trees planted close together which would give good protection in fall and be a source of revenue at the same time.

The Yellow Bellflower also should be given more attention by growers. The tree will stand a good deal of pruning and if the fruit were thinned—a practice which must shortly come in vogue if we want to compete successfully—a fine size of fruit would reward the grower. There is no finer winter apple here than the Yellow Bellflower (Bishop's Pippin).

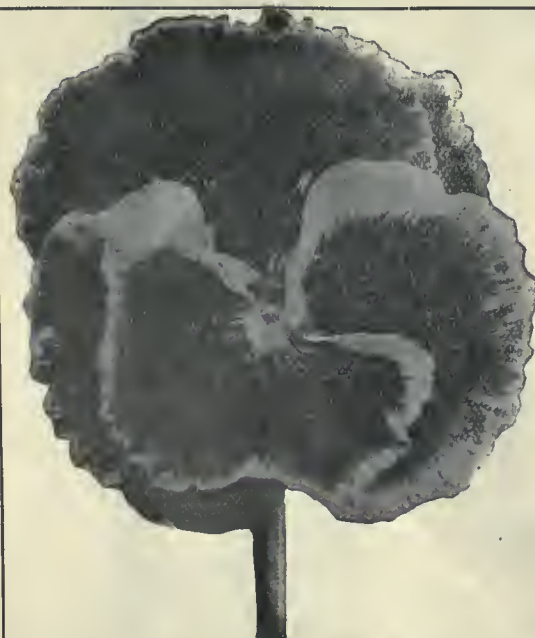
Annapolis Valley East, N. S.

Eunice Watts, A.R.H.S.

At one of Berwick Fruit Growers' meetings an unusual discussion took place in which a speaker advocated growing orchards in half sod and non-pruning in the raising of fruit for English markets. As an example he quoted the name of a well known Kings county man who leaves sod around the trees and cultivates a strip down the centre of the rows into which he puts fertilizer. This man sprays his trees but does not prune them. Growing apples by this method and gathering them early, the fruit is said to keep longer, and stand up well in the markets. The returns received from England were double those of his neighbors who sent by the same boat; for instance, his 88 barrels of Baldwins sold for 81 pounds (£81) while other men only received 10 or 12 shillings a barrel. The speaker said that he was growing apples for the money there was in them and he thought he would try a block of orchard in the sod plan. If the English people wanted crab apples he would grow them—but, when he wanted apples for himself he would grow them in the orthodox way!

One of the leading fruit men said that he thought that the man referred to had by his methods done great injury to the fruit industry. He could not account for the high prices, but he did know a man who shipped to the same firm as the "non-pruning" man and this grower received 32 shillings when other people were receiving 18 and 20 shillings. He thought that in the competition to get our fruit commission merchants resorted to different devices, and one method was to give a widely known grower big returns, so that when others heard of it, they would naturally ship to that firm which would make up for their loss by reversing their prices at a later date.

Orchardists are saving several dollars a ton, by co-operating in buying fertilizers.



PANSY MADAME PERRET, 25c.

SEND FOR CATALOGUE OF ENGLISH GROWN SEEDS OF PROVEN QUALITY

The World's Best in PANSY MIXTURES
EXHIBITION SHOW, . . . 50c.
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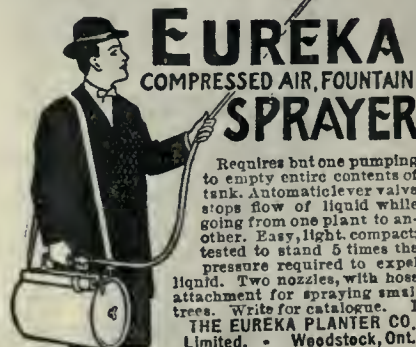
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Requires but one pumping
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The Late Mr. Murray Pettit

In the sudden death of Mr. Murray Pettit of Winona, Ont., which took place on March 3, the fruit growers of Ontario, and particularly of the Niagara district, lost one of the best known and most prominent personages connected with the industry. Throughout his long and useful life Mr. Pettit was identified with organizations and movements that had and have to do with the progress of fruit growing. As president and a director of the Ontario Fruit Growers' Association, president of the Niagara District Fruit Growers' Stock Co., Ltd., president of the Niagara Peninsula Fruit Growers' Association (which position he held at the time of his decease), and as a prominent figure in other organizations, he labored always in the interests of the industry rather than only for personal gain. Mr. Pettit had been also reeve of the township of Saltfleet, warden of the county of Wentworth and repeatedly president of the South Wentworth Conservative Association. The nominations for both the provincial legislature and the Dominion parliament had been tendered to him, but he always declined.


As a fruit man, Mr. Pettit was an authority, particularly on grapes. For a number of years he conducted experiments with grapes for the Ontario Department of Agriculture. He was one of those who introduced the famous Niagara grape into the commercial vineyards of the Niagara district. His opinion on the culture of grapes and on varieties was sought by leading horticulturists in all parts of this continent. Besides being a leader in all progressive movements in connection with our fruit industry, he was an upright and honorable citizen and a most courteous and unassuming gentleman. The name of Murray Pettit will be an honored one in the history of Canadian horticulture.

ter efforts in the science of horticulture. I hope it will continue to improve in the future as it has most certainly done in the past.—W. T. Patullo, Caseleyville, Alta.

A bulletin from the Ontario Department of Agriculture, entitled "Bacterial Blight of Apple, Pear and Quince Trees," has just been issued. The author is Mr. D. H. Jones of the Ontario Agricultural College. This is a valuable contribution to the literature

on this disastrous disease. Among other things mentioned the author tells of experiments conducted to show that the disease is spread by aphids and other sap-sucking insects inoculating twigs, by fruit bark boring beetles and other borers inoculating the branches and trunks, and by workmen's tools when pruning operations are in progress. Copies of this bulletin (No. 176) may be had on application to the Department of Agriculture, Toronto.

The reading of THE CANADIAN HORTICULTURIST ought to act as an incentive to bet-



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Sprays "anything"—potatoes or truck, 4 rows at a time. Also first-class tree sprayer. Vapor spray prevents blight, bugs, scab and rot from cutting your crop in half. High pressure from big wheel. Pushes easy. Spray arms adjust to any width or height of row. Cheap in price, light, strong and durable. **GUARANTEED FOR 5 FULL YEARS.** Needn't send a cent to get it "on trial." You can get one free if you are first in your locality. Write now.



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For big growers. Most powerful machine made. 60 to 100 gallon tank for one or two horses. Steel axle. One-piece-heavy-angle-iron frame, cypress wood tank with adjustable round iron hoops. Metal wheels. "Adjustable" spray arms and nozzles. Brass ball-valves, plunger, strainer, etc. Big pump gives vapor spray. **Warranted for 5 years.** Try this machine at our expense with "your money in your pocket." See free offer below. Write today.



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We do all corresponding and selling. All you need do is show the sprayer. Many have paid for their sprayers in this way. This offer is good for only the first order in each locality. Don't delay. Send the coupon or post card NOW.
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The 6 packets for 55c. postpaid.

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WRITE OUR NEAREST ADDRESS**Better Crops With Half The Work**

You can't afford to farm without Planet Jr implements. They are the greatest implements ever invented to prepare the ground for big results and lighten farm and garden labor. Over two million farmers and gardeners are now using Planet Jrs. Strong and lasting. Fully guaranteed.

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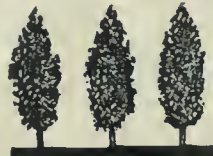
No. 12 Planet Jr Double-Wheel Hoe, Cultivator, and Plow is the handiest implement ever made for truckers and gardeners. All cultivating parts are of high-carbon steel to keep keen edge. Specially designed to work extremely close to plants without injury. Does away with hand-weeding.

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The new Hardy Hydrangea HILL of SNOW, a Beauty. Baby Rambler in Bloom all summer, by mail 35c. each.
Apple, Pear, Plum, Cherry, Peach and Ornamental TREES
Roses, Shrubs, Seed Potatoes, Etc.

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A Change of Seed is Always Advantageous

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Grower of Seed Peas, Beans, Potatoes, Oats and Barley

A Young Man at Ninety

A good friend of THE CANADIAN HORTICULTURIST and one who has been a subscriber since the first issue of this magazine appeared, is Mr. S. P. Morse of Lowville, Ont. Soon after the Ontario Fruit Growers' Association was organized in 1859, Mr. Morse became a member. From the birth of THE CANADIAN HORTICULTURIST until the present time he has been a strong supporter of the publication and has helped in many ways. He has been successful in securing many new subscriptions. In a letter recently received from Mr. Morse he said:



"My desire to help increase the circulation of THE CANADIAN HORTICULTURIST was quite as much of a patriotic sentiment as a business enterprise. To develop Ontario to her full capacity as a producer of first-class fruit was to add enormously to her resources and prosperity. I pointed out the benefit to be derived from a paper that specializes like THE CANADIAN HORTICULTURIST. I was convinced that every person who is interested in horticulture in any way should take your magazine, which is authentic and reliable." In THE CANADIAN HORTICULTURIST for January, 1907, brief mention was made of Mr. Morse's good work. At that time he had sent in 15 new subscriptions and altogether has secured 60 or more. As Mr. Morse is now 91 years old these results from his canvas are exceptional.

As a fruit grower and as a nurseryman, Mr. Morse has had a wide and varied experience. He still maintains his interest in these things. The horticulturists of Canada as well as THE CANADIAN HORTICULTURIST hope that Mr. Morse may yet add many years to his already long and useful life.

Build a Telephone Line.—Now is the time for you and your neighbors to get together and discuss the question of forming a rural telephone company. You may not know that by writing to the Northern Electric Mfg. Co., Toronto or Montreal, a little booklet may be secured, free of cost, that gives some valuable suggestions as to how to go about forming a rural telephone company. Ask for booklet No. 2216 when you write.

Our cover cut this month illustrates a section of the Niagara district of Ontario. The view is from the mountain, near Winona, and gives a fair idea of the extent of the vineyards and orchards in that famous district.

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Direct from the Producer

Special attention given to Cleanliness and Purity in making our Maple Syrup. We follow the most up-to-date methods, and guarantee our product Absolutely Pure. Send us an order, and you will buy from us next year. Write us to-day, as the supply is limited.

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T. R. BENNETT**WROXETER, - - ONTARIO**

Some Comments on Pruning

Editor, THE CANADIAN HORTICULTURIST: In an article entitled "Pruning the Orchard" that appeared in the March issue, page 58, the writer says that the best time to prune is in June or first of July "when the sap is done running." Is the sap done running then? How is it that we do our budding in July and August, when the sap is running freely between bark and wood?

There is not much growth after that and the wounds made by pruning at that season are not healed till the next season, while if the cutting is done immediately before growth begins, the healing process is carried on all through the growing season and by the fall all small wounds are healed completely. My opinion is that pruning should be done at a time that will permit of the healing of the wounds in the quickest possible time, and that time is just at the beginning of the growing season.

On the other hand, if we wish to give a tree a check and cause it to come into bearing or to set more fruit than it has been doing, we may either let the ground go to sod, or prune it quite severely about the first of July, and this causes it to throw the energy, that would otherwise be devoted to the wood that has been cut out, into making fruit buds on the wood that has been left.

The statement, "keep the tops open, and let in the sun," is indefinite. We have had men doing that around here for years, and they have ruined hundreds of trees. In pruning a tree, we should make it open enough to admit the light and air throughout the head, but we should not begin on the inside of the tree to prune, but rather on the outside, cutting out or shortening cross branches, till thin enough to let in the light; but by no means should we cut out all fruiting wood in the centre of the tree, so it will bear all its fruit on the tips of the branches.

The writer says: "Cut out all suckers and branches that spread over." What he means by "spread over," I do not know, but there are thousands of trees throughout our country that should not have the suckers cut out of them, but should rather have them trained into fruiting wood to properly balance the tree. In fact there are thousands of trees that should be pruned back to encourage them to throw out suckers, to be trained into fruiting wood in the centre of the heads.—W. J. Kerr, Ottawa.

Amateur fruit growers may secure a valuable book, entitled "Amateur Fruit Growing," free of cost, by sending only one new subscription to THE CANADIAN HORTICULTURIST.

D. M. Ferry & Co's Seed Annual for 1910 may be had free of charge by writing to them at Windsor, Ontario. It contains much of interest for those who think. Mention this paper.

Royal Botanic Gardens KEW, ENGLAND

Office of the Curator,
Kew, September 13th, 1909

Mr. H. H. Groff,
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Dear Sir:—

Your Gladoli have been and are still very much admired here. The Yellows and Blues are exceptionally good, and the named varieties, BLUE JAV, DAWN, LA LUNA, and PEACE, are superb.

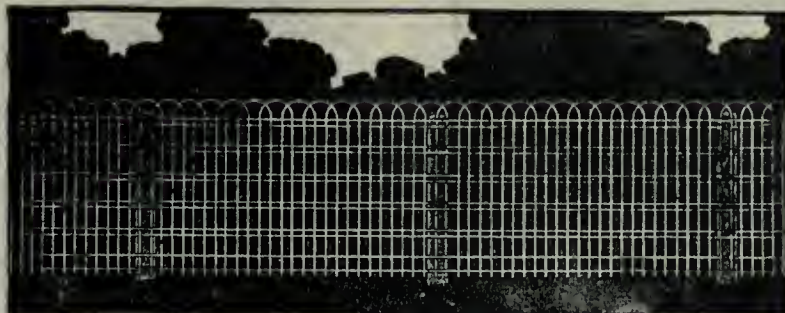
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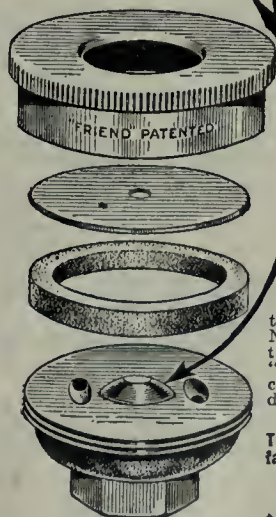
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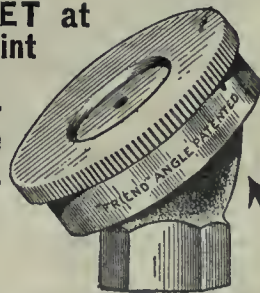
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Thousands of Up-To-
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ZLES ARE SUPERIOR."
Why is this?



"REGULAR"



SIMPLY because they GET THERE. An IMITATION indicates that somewhere there is an ORIGINAL. Look on the NOZZLE you use and see if you can find the MAKER'S NAME and the word "PATENTED." The "FRIEND" is the ORIGINAL large Nozzle doing away with the cluster. "FRIEND" Nozzles have no HORNS, no HOOKS, nothing to catch, drip or clog. They make the finest MIST-LIKE Spray, driving it farther into the trees than the cluster.

The "ANGLE" sprays up under the leaves and down into the CALYX. The "REGULAR" is for ordinary work. State which is wanted. Satisfaction guaranteed or money refunded. Price, \$1.00 each, postpaid

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"Friend" Nozzles mailed from Canadian Nozzle Branch. No Duty.



SMALL FRUIT PLANTS

Gooseberries, Josselyn, Red Jacket, Downing, Pearl, Houghton.—Currents Perfection, Ruby, Cherry, White Grape, Lee's Prolific, Champion, Black Naples, Victoria.—Raspberries, Herbert, Cuthbert, Marlboro, Brinckle's Orange, Golden Queen, Strawberry-Raspberry.—Garden Roots, Asparagus, Rhubarb, Perennial Celery.

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It makes soiled Straw Hats as good as new—and you may have your hat the same shade as your summer dress.

Made in 21 fashionable and popular colors.

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All the new show Cactus and standard Dahlias. All varieties named or mixed for spring planting. All home grown and finest forms and colors. By mail or express at lowest popular prices at once.

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Have Produced the Finest Crops for the past thirty years.

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Write at once. Do it right now. May mean dollars in harvest.

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Shipping Pears to Glasgow

J. O. Duke, Ruthven, Ont.

I have shipped two carloads of pears, mostly Kieffer, to Glasgow, one last year and one the year before, and while neither shipment was very profitable, still the balance has always been on the right side.

We begin picking about Oct. 1, and usually can get the car away in seven or eight days. The fruit is carefully picked and put in crates and immediately hauled to packing house. No fruit is left out all night. It is always kept cool and dry. None but uniform and perfect specimens are taken and each fruit is wrapped in paper and packed in half size boxes, 5 in. x 11 in. x 20 in.

We ship in a refrigerator car and if the weather is warm we ice the car. We ship in cold storage on the steamer, and the fruit arrives in first-class shape. The fruit sells at a fair price; Kieffers at 2s. 9d; Lawrence, Clairgeau, and Anjou at about 4s; and Duchess, at about 4s. 6d. per half case; but the charges are enormous.

We hear of the Old Country laborer being poorly paid, but I cannot believe that any more, for on looking over the account sale of these cars we find that it costs nearly half as much to remove the fruit from steamship after it is tied up, as it does to pay the freight both inland and ocean from here to Scotland. Here are the items of last car; Freight £60, 11s., 10d; portorage, etc., £24, 16s., 6d. This amounts to about 21 cents a box for freight and 9 cents a box for portorage and other charges.

Free Book on Spraying.—A most reliable and interesting treatise on spraying and one which should be in the hands of every fruit grower is that published by the Goulds Manufacturing Company, Seneca Falls, N.Y., entitled "How to Spray—When to Spray—What Sprayers to Use." This book, as its name applies, covers the subject thoroughly. It tells just the proper time to spray most effectively for all kinds of insects, fungi, etc., and contains complete formula for the preparation of all spraying mixtures. It also illustrates methods of spraying and describes the extensive line of reliable spraying outfits made by this well known company. Write for a copy.

Geo. Keith & Sons, seedsmen, Toronto, have for years been best known for the high quality of their farm seeds. They now aim to become equally well known through their flower and garden seeds, and to that end are devoting special attention to the selection of varieties and quality in Keith's Selected Strain of flower and garden seeds. See their advertisement on another page.

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Our "Champion" is easily the champion of all washing machines.

All cogs and machinery covered.

Lever and High Speed Balance Wheel operating together simply cut the work of washing to the lowest possible point.

Don't think of buying a washing machine until you have seen the "Champion". If your dealer can't show it, write us for booklet. 76

DAVID MAXWELL & SONS. - ST. MARY'S, ONT.



Because of their shape, plates of "Bissell"

Orchard Harrows turn over soil cleaner, better than you've been accustomed to have it done. Attach wings and Harrow extends out 12 ft. or more to cultivate under limbs of trees—closes up narrow enough to cultivate between grape vines. Combination Harrow too—reversible from "Out Throw" to "In Throw." Low seat, well-braced frame. Ask your dealer for information or write Dept. N.

T. E. Bissell Co. Ltd., Elora, Ont.

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N. B. POTATOES

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Will guarantee stock true to name.

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This shows the H.P. Spramotor arranged for spraying potatoes, three nozzles to a row and four rows, two spraying from the sides and one from the top, adjustable as to height and width up to 40-100 rows. Nozzles absolutely will not clog. 12-gallon air-tank, automatic and hand controlled; 100 lbs. pressure guaranteed with 12 nozzles open. An acre can be sprayed in 20 minutes. Has agitator clean-out pressure relief into tank, and nozzle protector all under control of the driver from seat. For 1 or 2 horses. Fitted for orchard, vineyards and grain. This ad. will not appear again in this paper.

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Advertisements under this heading inserted at rate of two cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

GINSENG FOR SALE.—Seedlings and stratified seeds, due to come up in May. Write to J. E. Janelle, Caughnawaga, Que.

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BRITISH COLUMBIA FARM LANDS.—80,000 acres on Grand Trunk Pacific Railway. Fort George District—retail or en bloc. Rich soil, ideal climate, easy terms.—The Mercantile Trust Co., Ltd., Vancouver, B. C.

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LANDSCAPE ARCHITECT.—Charles Ernest Woolverton, Grimsby, Ontario, is prepared to make plans for the improvement of country estates, city parks or private grounds, and also to give lists of suitable trees, plants and shrubs for planting. He has no personal interest in the sale of any of these, but can direct clients for purchasing them at lowest prices. He will superintend the work of the gardeners in carrying out his plans, where such service is needed. Terms very moderate.

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COMING EVENTS

Under this heading, notices of forthcoming exhibitions and meetings of horticultural importance will be published. Send the information as long in advance as possible.

EXHIBITIONS.

Calgary, Alberta Provincial.....July 4-9.
Charlottetown, P. E. I. Provincial,....
.....Sept. 20-24.
Halifax, N. S. Provincial..Sept. 28-Oct. 6.
London, Eng., Royal Horticultural Show
(for colonial-grown fruit and vegetables)
.....Dec 1-3
St. John, N. B., Dominion Exhibition....
.....Sept. 5-14.
Winnipeg, IndustrialJuly 13-23.

"Roofing Right," is the name of a finely illustrated booklet, of 48 pages, prepared by the Pedlar People of Oshawa, Ont., and is a book that will interest those who are thinking of buying roofing for any building. It will be sent free on request by writing to the above company and mentioning THE CANADIAN HORTICULTURIST. Ask for booklet No. 8.

Rennie's Seed Annual is a handsome catalogue giving full descriptions of the best seeds that can be grown, as proved by the yearly increasing sales throughout the Dominion, neatly bound in lithographed covers with bright colors, illustrated by 250 engravings devoted to vegetables, flowers, field roots, grains, etc., showing good crops of some special varieties taken from nature. No seed buyer can afford to be without the Rennie Seed Annual, which tells you just what to plant in your garden for 1910. Write for it to-day.

At a special meeting of the board of directors of the "Friend" Manufacturing Company of Gasport, N.Y., on Feb. 10, it was voted to double the efficiency of the present plant by the addition of a large fire-proof structure, to be used for the installation of the new and modern machinery

which the company have recently purchased and contemplate purchasing for another season's work.

All persons that intend to sow garden seeds this spring should send to John A. Bruce & Co., Hamilton, Ont., for a copy of their 1910 catalogue. An excellent variety of high-class seeds is offered by this firm.

Northern Grown Trees

Apple, Pear, Plum, Cherry, Peach, Grapes, Small Fruits, Deciduous and Evergreen Ornamentals, Roses, Flowering Shrubs, Climbers, etc. Specialties: Mammoth Dewberry and Wismer's Dessert Apple. Catalogue Free; it tells the whole story.

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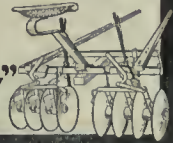
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Niagara Peninsula Growers' Meet

THE meetings of the Niagara Peninsula Fruit Growers' Association held last month at St. Catharines and Winona were well attended. In consequence of the death of the late president of the association, Mr. Murray Pettit, vice-president Robert Thompson filled the chair with his usual capability. Secretary Carl E. Fisher was at his desk, looking after the arrangements of the convention. Feeling references were made to the work of Mr. Pettit, and a resolution of condolence moved by Mr. J. W. Smith and seconded by Mr. W. H. Bunting, was unanimously carried. This, on behalf of the association, has been tendered to Mrs. Pettit and her family.

PEACH PRODUCTION

"Profitable Peach Production," was a subject handled by Mr. T. A. Farrand, of Eaton Rapids, Mich., in a way that showed the speakers' close association with the growing of this fruit. Mr. Farrand spoke altogether from Michigan conditions where he said the area for profitable peach production was limited. Many mistakes were always being made in trying to grow the fruit under unfavorable conditions. The location of a peach orchard was the most important factor. Trees must be planted on a high elevation. Frost is bound to settle in low

places, and under these circumstances the buds run a sure chance of being nipped.

"I advise you to plant the varieties the markets demand," said Mr. Farrand. "There is at the present time no demand for white peaches in Michigan." The Elberta is the standard variety there, although not so hardy in the bud as some other varieties. Engol's Mammoth is a much harder peach than the Elberta. There was never a time in history when good fruit was over-produced.

The speaker laid strong emphasis on planting the trees a suitable distance apart as some growers put them in altogether too close to each other. Twenty to 24 feet apart would be about right. Good judgment must be used here as well as in other things.

In answering a number of questions, Mr. Farrand gave the following list of six yellow-fleshed peaches for a continuation: St. John, Engol's Mammoth, Kalamazoo, Elberta, Smock and Salway. Mr. J. W. Smith's list was: St. John, Early Crawford, Elberta, Yellow Rareri, Lemon Free and Smock. The man from Michigan didn't know of a better yellow peach than the St. John or Triumph.

With Mr. Farrand, clay was preferable to light sand for growing peaches. In his state, the package known as the Georgia



The HAND SPRAMOTOR No. 1 or No. 2 has 4 to 8 nozzles, all brass sprayer. The wheels and nozzles are adjustable, from 26 ins. to 36 ins. Vertical adjustment from rack 16 ins. Automatic vertical nozzle adjustment, brass spramotor. Ball valves, automatic compensating plunger. Mechanical agitator.

It is mounted on a cart with strong hardwood frame. Has 52-in. wooden wheels with iron hubs and steel axles. For one horse.

Can be used for orchard, vineyard, mustard and potatoes, or for painting and whitewashing. Sold without cart as well. Guaranteed. Write for free Treatise on Crop Diseases. Agents Wanted.

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THE SEEDS THAT GROW

Did you ever prepare a garden most carefully, sow the Seeds most tenderly, and then wait—and wait in vain—for most of them to come up? Then you'll realize the expensiveness of poor seeds—seeds that are too old or too weak to germinate.

You can't tell by looking at the seeds in the store whether they will grow or not. You can't be bothered testing them.

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For forty years they have been giving big, healthy results. Write for our big illustrated catalogue. It is Useful, Interesting and Free.

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WM. EWING & CO., MCGILL ST., MONTREAL
SEEDS

carrier, was used for shipping. Peach trees were better protected stored in cellars if the ground was not in a condition to plant.

PROFITS IN ORCHARDING

On "The Profits in the Other Fellow's Orchard," Mr. Farrand told of how he had at different times taken over neglected apple orchards and by systematic spraying and pruning made them profitable. By the examples shown, the apple growers who formerly had let the orchards degenerate were now awakening to the good profits that could be derived from them, and in consequence Michigan was making great strides in the last couple of years by following up this industry closely.

ORCHARD CULTIVATION

With the aid of a stereopticon, Prof. J. P. Stewart of the Pennsylvania State College showed the growers views of trees that fertilization had benefitted and contrasted them with others that had been left to shift for themselves. The topic Professor Stewart chose, was "Proper Orchard Cultivation," and in it he confined his experience and remarks almost wholly to apple orchards.

The use of fertilizers and nitrogen when not placed too near the trees gave excellent results. The plowing in of cover crops provided nitrogen. He would not plow apple orchards in the autumn only under the ex-

ceptional circumstances of tougher sed in the spring.

DISTRIBUTION OF FRUIT

At one of the sessions, Mr. J. E. Johnston of Simcoe told how co-operation had benefitted the growers in Norfolk county by proper distribution. Major H. L. Roberts of Grimsby gave a short interesting talk on what the association was trying to do along the lines of distribution. They were striving to secure better prices and extend the markets. Co-operation was making good progress but ultimate benefits could not be secured unless every grower put his shoulder to the wheel.

FERTILIZERS

"The object of fertilization," said Professor Gamble of the O.A.C., in an address on this subject, "is to supply material that acts on soil elements rendering them soluble and unlocking plant food." It was well to apply lime on light soils once every six or seven years where heavy manuring had lessened this ingredient in the soil. Whether to plow or sow a cover crop, depends largely on the season. If the season be dry it is well to have a cover that holds the moisture. Cultivation increases the decay in organic matter and liberates the nitrogen. Cultivation and water had more to their credit in the growth of successful crops than manure.



FOR RAPID THOROUGH WORK CHOOSE THE I H C SPRAYER

GET ready for spraying time with a dependable outfit, one that will enable you to do the work rapidly, at the right time, with least expense and sure results. I H C power sprayers are made in all styles and sizes for all purposes—orchard, field and vineyard. One of them will just meet your needs. Complete outfits—engine, pump and all accessories, mounted on skids or wagon trucks as ordered.

Blue prints furnished for building your own spray wagon, housing, tank, etc.

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I H C engines are celebrated for their simplicity, economy of fuel consumption and reliability. They are solving the "help" problem for fruit growers, farmers and gardeners everywhere. We have issued a complete catalogue on spraying. Don't tie up money in a spraying outfit that you can use only for spraying. Investigate the I H C line of general purpose engines. There are many styles and sizes, from 1 to 25-horse power—an engine for every section and every problem, for all farm uses—vertical and horizontal (both stationary and portable); engines on skids; sawing, pumping and spraying outfits. It also includes gasoline tractors, first-prize-gold-medal winners, the best all-round farm tractors. Call on our local agent, or write International Harvester Company of America at nearest branch house for catalogue and full information today.

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When To Spray—
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It is full of interesting information and contains many valuable formulas for spray mixtures. Copy sent free on request.

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As extensive growers of fruits, we know that first class, thrifty, and reliable stock is demanded by the modern horticulturist.

We have a splendid stock of trees. Our trees are healthy and hardy when shipped. They reach you in a fresh condition—sure to live, and grow steadily.

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Fertilizers should be reliable ones, true to name; or, it would be well to purchase the pure materials and mix them at home.

There is always a misrepresentation with regard to commercial fertilizers. Three ways were used to supply plant food—by applying barn yard manure, by the use of artificial fertilizers and by turning green crops down.

Heavy mulching bleaches plants, frees the nitrates and allows the ground to get cold. A proper application depends on weather and soil. Nitrogen from the air is a necessity for plant food, and the tap roots of growing things open the ground to the air.

"No matter how complete an analysis has been made of a soil," said Professor Gamble, "it is of little service in showing up its immediate requirements. It depends a good deal upon the plant, also the available food the soil contains for that plant."

Mr. Geo. A. Robertson, speaking on methods for underdraining in clay, sand and gravelly soil, laid down some rules for depth and distance apart. Three feet deep and 30 feet apart in sand. In an orchard the depth depended on the subsoil: the distance apart should be from 60 to 66 feet. In clay, 45 feet was about right, the depth depending a lot on the substance encountered below three feet.

In discussing the growing of strawberries and raspberries, Mr. Farrand said that mulching was of vital importance. On heavy soil he grew the heavier crops and planted his strawberries the same width as corn, cultivating them the same way. He had not

much experience with red raspberries, but cut his blacks low, planting on rich ground six feet apart.—J.A.S.

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By Prof. SAMUEL B. GREEN
Of the University of Minnesota

A practical guide to the growing of fruit for home use and the market, written with special reference to a cold climate. Paper cover, 138 pages, illustrated.

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TORONTO

The Canadian Horticulturist

Vol. XXXIII

MAY, 1910

No. 5

The Construction of Cold Storage Warehouses*

J. A. Ruddick, Dairy and Cold Storage Commissioner, Ottawa

I AM in favor of making the cold storage of fruit a special business, as a rule. Large general cold stores at important centers should have provision for handling apples and other fruit, but in many cases it will be more economical and more satisfactory all round to have warehouses built and equipped for the handling of fruit only. Cold storage is required for fruit in localities where little or no other kind of produce will be offered. Non-freezing temperatures only are required and that chiefly during the coolest part of the summer and in the winter months. This permits of lighter insulation and lower refrigerating power than is necessary for general storage where freezing temperatures must be provided.

The period of fruit storage covers only a part of the year. A special fruit cold storage need be operated only when fruit is in storage.

CONSTRUCTION.

There are many different plans on which such a building may be constructed, and different materials may be used for insulation. I shall not attempt to describe all of them, but I shall endeavor to give some idea of the kind of a warehouse which would be suitable for a co-operative fruit association, because it is chiefly in connection with these organizations that I expect to see cold storage applied to the fruit trade in Ontario.

If the warehouse is to be on a railway siding, the ground floor should be on a level with the car floor, with a basement beneath, and as many floors above the ground floor as may be considered necessary. My preference would be, except in the case of very large warehouses, to have only a ground floor and basement with an attic for the storage of boxes, etc. Such a warehouse seventy-five by forty-five feet with a one-story addition for machine room and office, would be sufficient to store between 7,000 and 8,000 barrels of apples, or the equivalent of about 10,000 barrels if packed in boxes. Fig. 1 is a diagrammatic longitudinal section of such a warehouse.

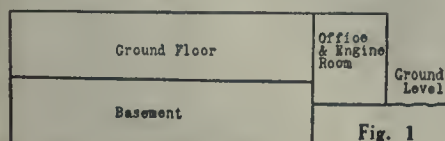


Fig. 1

The ceilings need not be over eight feet high to accommodate five tiers of barrels, which is high enough for piling.

The cheapest possible construction, consistent with reasonable efficiency, is the one which will be most popular. I cannot say that I agree with the policy which prompts the erection of more or less temporary buildings in connection with an industry so well established and with so much promise for the future as fruit growing, but as we are dealing with a condition rather than a theory, I am prepared to take things as I find them.

For the basement of this building, there is probably no cheaper or better material than concrete. The upper storey

Chaste and Beautiful

I am greatly pleased with the new dress of THE CANADIAN HORTICULTURIST. The cover design is one of singular adaptability and becoming beauty for a magazine devoted to horticultural pursuits. Nothing could be more chaste and beautiful. Congratulations!—Hugill Barr, Forest, Ont.

can be built of wood more cheaply than with other materials, because the structural parts can be combined with the insulation material in the most economical manner. Planer shavings make the best and by far the cheapest insulation, for wood construction. The empty air space, miscalled a dead air space, is an obsolete form of insulation. Absolutely dead air is, next to a vacuum, probably the best insulator known, but experience has taught us that air in wall spaces is not "dead," and that it circulates within the space and carries heat from one side to the other. Hence the practice of filling these spaces with some light non-conducting material like shavings, which confine the air on the same principle as the air is confined in the fur of animals, or in our clothing to prevent the passage of heat. Sawdust is sometimes used for filling spaces, but it should not be unless it can be kiln dried, because it normally

contains a great deal of moisture. It is always cut from green or water-soaked timber and this moisture destroys its insulating value and at the same time encourages the growth of moulds, which soon give rise to mustiness. Dryness is the first principle of successful insulation and must never be overlooked. Think of the difference between dry and wet clothing on a cold day.

Considering cost and efficiency, I would recommend the following combination for the walls of a building of this class. For the basement, a ten-inch concrete wall, water-proofed on the outside and finished on the inside with a one-inch air space, one course of matched lumber, a six-inch space filled with shavings and two courses of matched lumber with damp-proof paper between. For the upper storey, two by four inch studs covered on the outside with one course of matched lumber, two ply of damp-proof paper and either metallic or wood siding; a space of ten inches filled with shavings, finished on the inside with two courses of matched lumber with two ply of damp-proof paper. This inside sheathing would require an additional row of two by four inch studs, which should be placed zigzag with the outside row. The ceilings will be sufficiently insulated with the spaces between the joists filled with shavings.

A very important precaution in the construction of the concrete wall is to give it a coat of pitch or other waterproofing on the outside, especially below the surface of the ground.

A section of the wall and ceiling of this warehouse which we are trying to describe would have the following detail. (See Fig. 2, on next page).

The basement floor is an important detail of the construction and probably the most difficult part to insulate, because we have to contend with the moisture from the earth. Cold storage engineers are not agreed as to the best combination of materials for ground insulation. Wood in any form is unsuitable, owing to the tendency to absorb moisture, which destroys its insulating value and promotes decay. Shavings, then, are out of the question. Impregnated sheet cork, laid between two layers of concrete, or asphalt and concrete, are being used in some of the more expensive plants. I

*Part of an address delivered at the convention of the Ontario Fruit Growers' Association last November. It will be continued in next issue.

have recommended for cheaper construction, such as we are considering, a combination as follows:

First, a four-inch layer of concrete,

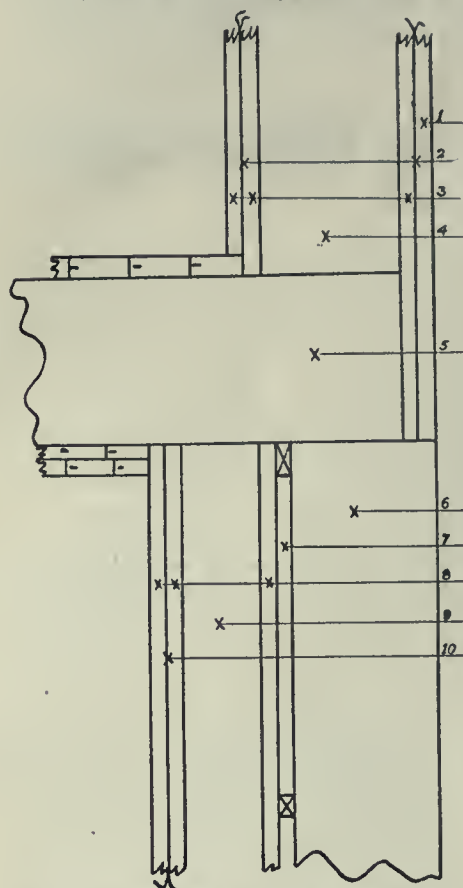


Fig 2, Section of Wall at Ceiling of Basement

1, Siding. 2, Damp-proof paper. 3, Matched lumber. 4, Ten-inch space filled with shavings. 5, Joist. 6, Ten-inch concrete wall. 7, One-inch air space. 8, Matched lumber. 9, Six-inch space filled with shavings. 10, Damp-proof paper.

then eight inches of clean, dry coal cinders, well rolled or rammed, a layer of tar paper and a finishing surface of two inches of concrete. A course of hollow brick (square tile) can be substituted for about one-half the depth of cinders. The tar paper is put over the cinders to prevent the wet concrete from filling the air spaces in the cinders. This combination will be improved by coating the first layer of concrete with roofing pitch to keep the earth moisture from the cinders. It is the cinders which provide the insulation. Concrete is a poor insulator. Fig. 3 gives a detail of such a floor.

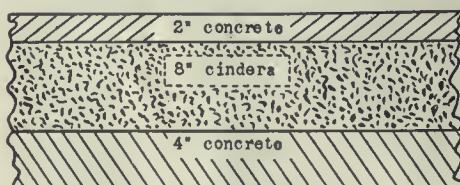


Fig. 3, Section of Floor

As for the arrangement of the rooms, much will depend on circumstances. In most cases, the basement would be as well in one room or two at the most. For the ground floor, which would be used for

cooling small lots during the active shipping season, the division as shown in Fig. 4 is only a suggestion.

A building such as I have described should be erected and equipped with refrigerating machinery at a cost, exclusive

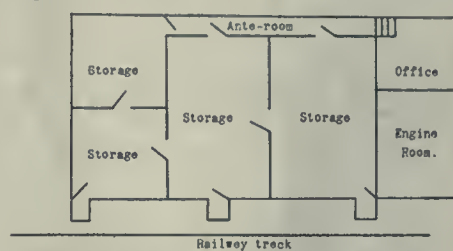


Fig. 4, Arrangement for Ground Floor

of site, of from \$1.50 to \$2.00 per barrel of capacity on a total of \$12,000 to \$15,000.

I shall not dwell any longer on this point, because I intend to have detailed working plans and specifications made and blue prints of these will be sent to anyone who applies to me for them.

Okanagan Valley Orcharding

"Cerasus," Kelowna, B. C.

Young orchards may be seen on "bench" land along the Okanagan valley, on which irrigation has not yet been laid. Annual rain and snow may not equal over ten to twelve inches precipitation; yet, on fair soil, if the cultivation is what is there termed thorough, fruit trees (until they have crops of fruit to mature) may be found flourishing.

It would pay those in the more humid eastern sections who grow about an occasional dry spell, to observe the plowing to catch the fall and spring rains and snow water, and the tireless discing and harrowing during the growing season as practiced here. While literally months of clear-skyed, long, hot, dry days roll by, model Okanagan orchards are at all times run without excessive irrigation and are weedless.

Italian Prune and Pond's Seedling plums have proved themselves hardy and highly profitable in some districts of British Columbia. Pond's, with its rare violet red color and British Columbia size, proves particularly attractive. Italian Prune and many other plums are much in favor on peach stocks, more so than in the east. Brown-rot (*Monilia*), in some parts unknown, is in general easily controlled in the comparatively dry atmosphere of the big fruit valleys.

What a pity more encouragement to box packing could not be given! Old price for well packed boxes is so little above the price of the same quantities when put in barrels that few undertake the former style of packing.—R. J. Messenger, Bridgetown, N. S.

Planting Raspberries

Chas. F. Sprott, Burnaby Lake, B. C.

To make the cultivation of the raspberry a profitable occupation, the fruit grower who is intending to grow this fruit for the market should be careful that the land he intends planting on is a deep, rich, moisture retaining soil. Land that will grow good crops of potatoes or corn will grow a profitable crop of raspberries. It is essential, also, that the land be thoroughly under-drained. The land should be plowed in the fall at least eight inches deep and well worked in the spring before planting is done. It should be fine and pliable.

When the land is in this stage it should be marked out—the rows being north and south, if possible, as the crops ripen easier. A good way to mark it out is to stretch a line across the field and with a marker lay off the field with rows six feet apart.

The marker can be made with a two by six-inch scantling having two pieces one by four nailed on at right angles on the flat side of the scantling, the points being six feet apart. Alongside these pieces, nail on two one by four by six feet on the edge of the two by six scantling with a cross piece nailed to them to draw by and brace these two pieces of one by four by six from the other side of the two by six scantling.

Pull the marker carefully up the line and return down, having the point in the last made line. Great care must be taken to keep these rows perfectly straight. Then plow up these rows, having the land side of the plow on this mark, and plow about five inches deep. When this is done, planting can commence, the plants being placed in the furrow thirty inches apart. The roots should be spread out and a little fine soil pulled into the furrow and pressed firmly around them. When all the planting is done, the remaining earth can be more quickly put into the furrow with a prong hoe, firming it around each plant.

The grower should be very careful to plant only strong, healthy suckers of those varieties which grow successfully in his neighborhood. To a large extent the success of the plantation depends on the quality of the plants that are planted. These should be cut down just above the ground the first season to stop them from fruiting, but just high enough to allow the man cultivating them to see them. The cultivator must be kept going through this patch to keep weeds from growing and to conserve moisture.

It is quite possible to grow some other crop in the centre of the six-foot rows and yet be able to cultivate, and it will help pay for the work of cultivating the raspberries which bring nothing in that year. Potatoes, turnips or carrots will do well on good land, and the raspberries should make good growth.

The Cost of Growing Grapes*

J. F. Carpenter, Fruitland, Ontario

LAST fall at the convention of the Ontario Fruit Growers' Association at Toronto figures were brought forward to show that grapes were being pro-

portioned to it its share of the loss entailed from the time the vineyard is planted until it bears enough to meet the expenses.

conditions? The only difference that can be made is in labor, fertilizing and spraying bills, and in no cases can it amount to more than one-third of the cost as figured in this table. By giving the vineyard this extra care, the average yield would be nearly doubled. When a grower has gone to the expense of starting a vineyard, orchard or small plantation and cared for it up to the time it should return him a profit, he should so handle it as to obtain the largest possible profit.

The manufacturer after establishing a plant finds he obtains much longer profits by running it at full capacity than half capacity. In both cases the interest on capitalization and depreciation in value of his plant will be the same. The grape grower's plant is represented in the cost of the land, planting, etc., and money expended in caring for the vineyard up to the time the returns meet the expenses. The cost of his plant will vary little whether he feeds and cares for it so as to bring full or average crops. This being the case, it will pay the fruit grower to run his vineyard, so to speak, at full capacity.

Great advancement has been made during the past few years in the organization and management of farmers' clubs, co-operative associations, and so forth. From these organizations we have examples of the results which business principles will bring when made use of by or-



One of the Many Productive Vineyards in the Famous Niagara District of Ontario

duced at a loss when sold at twelve cents a basket. A few of the growers present thought the figures were high, and no definite conclusion was arrived at. If the grower would estimate his cost in the same way as a manufacturer would make an estimate, he would be in a position to see where he could change his methods so as to increase his profits.

Why should the fruit grower not make use of the same business methods as the manufacturer? The latter in estimating the cost of production, figures in the cost of the raw material, labor, interest on capitalization and depreciation in value of plant and any other expenses which directly or indirectly influence the cost. He then sells his article at a price above that cost to insure himself a fair profit. What does the average fruit grower do? He sells his fruit for what he can get for it, seldom knowing what it has cost him to produce it. As for a fixation of the selling price, it is to be hoped that as co-operation becomes more widely spread, organization becomes more perfect and fruit growing is looked upon more as a business, that this question will be adjusted.

The table on this page is an estimate of the cost of growing grapes. This represents the cost of growing with the best of care in a full bearing vineyard. The cost would be increased slightly if we ap-

The expense figured here is above the average and as a result we would expect a yield about the average. How much difference is there between the cost as figured here and the cost under average

COST OF GROWING GRAPES—ONE ACRE

530 vines at 2 1/2c	\$13 25
Cost of planting	5 00
" posts, (170 at 12c; 22 at 16c).....	23 92
500 lbs. wire at 3c	15 00
Digging for and setting posts	13 32
Stretching wire	1 00
Wire tighteners	50
	\$71 99
Cost without labor	\$52 67

Spraying for one acre:	
36 lbs. copper sulphate at 6c.....	\$2 16
36 lbs. lime at 1/2c.....	18
Poison for 9 bbls.	25
	\$2 59

Fertilizer:	
12 lbs. nitrogen, at 17c	\$2 04
48 lbs. phosphoric acid at 6c	2 88
66 lbs. potash, at 5c.....	3 30
	\$8 22

Implements for 20 acres:	
1 Furrow plow	\$10 00
2 Furrow plow	15 00
Disc harrow	25 00
Grape hoe	10 00
Hoes, forks, etc.	5 00
Harrow	10 00
Sprayer	125 00
Dray	125 00
Wagon	50 00
Odds and ends	10 00
	\$385 00
For one acre	\$ 19 25

Interest on cost of land, 6 per cent. of \$125..	\$7 50
Labor	20 00
Spray materials	2 59
Fertilizers	8 22
Keep of horses	15 60
Interest on capital invested in vines, posts, and implements, 6 per cent. of (\$19.25 + \$71.99)	5 47
Interest on capital invested in horses, harness, barn, 6 per cent.	3 34
Depreciation in value, harness, horses, barn and implements, 10 per cent.	7 50
Depreciation in value, vines, trellis, etc., at 4 per cent.....	2 10
Taxes and insurance	1 00
	\$73 32

3 Horses at \$150	\$450 00
1 Set single harness	25 00
1 Set double harness	40 00
Barn	600 00
	\$1,115 00
For one acre	\$ 55 75

Suppose sale price of grapes is 12c:	
Picking ....	.1 c
Baskets	3.6c
	4.6c
Net price per basket = 12 - 4.6 = 7.4c.	
To give \$73.32 would require $\frac{73.32}{7.4}$ = 990 baskets.	

*The substance of an address delivered at the short course in fruit growing held at the Ontario Agricultural College last February.

ganized bodies of farmers and fruit growers. These organizations to be successful require at their head a man who understands these principles in respect to farming and fruit growing and knows



Apple Blossoms on Prince Edward Island

how to make use of them. If every fruit grower would educate himself along the same line with reference to his own business, it would not only be profitable to him but would increase greatly the success of the organization of which he may be a member. It will be a good thing for fruit growing in Ontario when every fruit grower does some figuring for himself.

An Experience with Cranberries

J. W. Ackerman, Delhi, Ont.

I started to experiment with cranberries in the spring of 1908. I have about seven acres of bog and on this there is about one acre of native plants that grow there naturally. I have been picking berries off these plants for several years. These plants are slowly spreading over the bog, but on account of the weeds their spread has been retarded.

Mr. A. McMeans of the Ontario Agricultural College heard of my cranberry bog, and wrote me in regard to it. He later came and saw me and had a look at the bog. He advised me to do some experimenting, and I decided to do so. I prepared a small piece of ground and planted it with Cape Cod plants which Mr. McMeans sent to me in the spring of 1908. They grew very nicely. Last spring I planted a quarter of an acre of Cape Cod and Wisconsin plants and they have done well.

When preparing the ground I first take the sod off, cutting it with straw knives. I cut about two and a half inches deep. The sod is wheeled off in a wheelbarrow. I then spade the ground and level it. My ground is laid out in lots about three rods wide, which is surrounded by a ditch about one foot deep. The ground is prepared in the fall.

I plant the plants about one foot apart each way. I allow ten or twelve vines to a hill. For planting I use a narrow piece of board pointed at one end. I lay the vine on the ground and place the pointed end of the board about the centre of the vine and push the vine into the ground, leaving about three or four inches of the top of the vines above the ground.

My bog floods naturally each winter. I have a dam at the head of my ditch. It is closed in the fall, and thus the water is held on the bog until the latter part of May or the first of June. My object in keeping the water until that season of the year is to keep the plants from starting to grow too soon, because if the plants start too early in the spring they come out in blossom too soon, and are liable to injury by frost. While the water is on them, they won't start to grow.

My experience with cranberries has been very short, but I believe that cranberries can be grown successfully in Ontario. Canada ought to be a good market for the berries, as thousands of bushels are shipped in from the United States. I have another quarter acre ready to plant next spring. I also planted a small piece of ground last fall, in order to compare fall planting with spring planting. In a later issue of THE CANADIAN HORTICULTURIST I will tell how the fall planting turns out.

Give commercial lime-sulphur a trial this year. It has come to stay.

Fungus on Maple

I am in trouble about a lovely maple tree. For the past three years we have noticed that its leaves turn red about August—much earlier than any of the other maple trees. The past two years a fungus has formed on the trunk of the tree and last fall it spread from the base of the tree up to its first branch. The leaves turned red very much earlier than they should, and they dropped off much earlier, leaving the tree gaunt and bare, while the others had not shed a leaf. I am afraid that I am going to lose it unless I can do something for it. It is in a place that I cannot very well spare it. Can anything be done to save it?—L. M., Cobourg, Ont.

It is difficult to diagnose the exact disease from the description given. I am of the opinion, however, that nothing can be done to save the tree at this stage since the fungus has got possession. From the fact that the fungus has appeared on the trunk, it seems likely that the tree was inoculated many years ago by the spores of this fungus probably gaining access through a wound. During all these years the fungus has been growing and spreading within the tree, and now it has sapped its vitality to such an extent that it ceases to perform its usual functions. As a rule, the formation of the fruiting body of the fungus on the trunk is one of the final stages of the disease. The tree will probably live but a short time, and the best thing to do is to cut down the tree before it becomes unsightly and before it has an opportunity to infect other trees by the annual crop of spores produced by the fruiting body on the trunk.—Prof. W. Lochhead.



Public Demonstrations in Orchards are Becoming a Valuable Factor in the Progress of Fruit Growing

The Connecticut Agricultural College has started several demonstration orchards in Connecticut, under the direction of Prof. C. D. Jarvis, and has given several public demonstrations. The illustration shows one of the latter. The chief aim of this work is to give the grower an idea of the best methods for reclaiming neglected apple orchards, for which New England is noted. The results so far have been very encouraging. The farmers in the respective neighborhoods are very enthusiastic in the work, and many of them have started the renovation of their orchards.

Rural England

Linus Woolverton, Grimsby, Ontario

TO the Canadian visitor, the country parts of old England are full of interest. The roads are perfect for cycling or for coaching and never deep with dust as ours so often are, so that pedestrians and carts may all follow the one track. Indeed they are too narrow to allow of a footpath, and in places it is with difficulty that an auto and a coach can pass each other between the hedges which border them.

During a recent visit the writer had the privilege of travelling through the counties of Hampshire, Dorsetshire, Devonshire, Somersetshire and Wiltshire, in part by rail and in part by coach. One thing particularly took his attention, the vast extent of country devoted to pasture. Instead of small farms of one or two hundred acres, each with its substantial farm house, and divided into orchard, garden, grain and pasture plots, we travelled hundreds of miles through meadows that looked as if they were never touched with plow or spade.

A beautiful country indeed, with its hills and vales of emerald green, subdivided into lots of all shapes and sizes by dark green hedges; but looking at it from the commercial viewpoint of a Canadian one cannot help thinking how much more it might yield and how many more lives it would support, if our system of small farms could be introduced, each owner making the most of his small estate.

After reading of the stately homes of England, one is naturally disappointed at seeing so little of them; in fact, in all our coaching tours in Devonshire we saw far fewer good houses than we

would see in any good farming district of Ontario. This is because the homes of the nobility, and even those of the country squires, are far removed from the public roads and screened from view by being situated in the midst of wooded parks.

Along the roadsides one often passes curious old-fashioned workmen's cottages with thatched roofs, often vine-clad and having fruit trees trained up the side. In their vicinity the ubiquitous buckthorn hedge is varied by a vine-clad stone wall, interesting because of its antiquity. Here and there the tourist passes through a whole village of such houses lining the sides of the road, themselves forming the walls of it and having their doors opening into the very street. Combe Martin is such a place, extending a mile and a half with its curious hedges.

The west coast of Devonshire is very rocky, with high cliffs and precipitous banks. In September, 1909, we spent a week at Ilfracombe, which is situated at the mouth of the Bristol channel. It is a fashionable watering place for Londoners, combining, as Charles Kingsley says, "The soft warmth of South Devon with the bracing freshness of the Welsh Mountains." On the rugged coast delightful walks have been made at immense cost by the art of man.

Another very curious seaside place some fifteen miles distant from Ilfracombe is Clovelly, which may be reached by steamer. It is described as the "quaintest and perhaps the most beautiful little village in all Devon. It consists of one main street or staircase,

with a few houses climbing on each side of the Combe. The houses, each standing on a higher or lower level than its neighbor, are all whitewashed, with gay



High Street, Clovelly, England

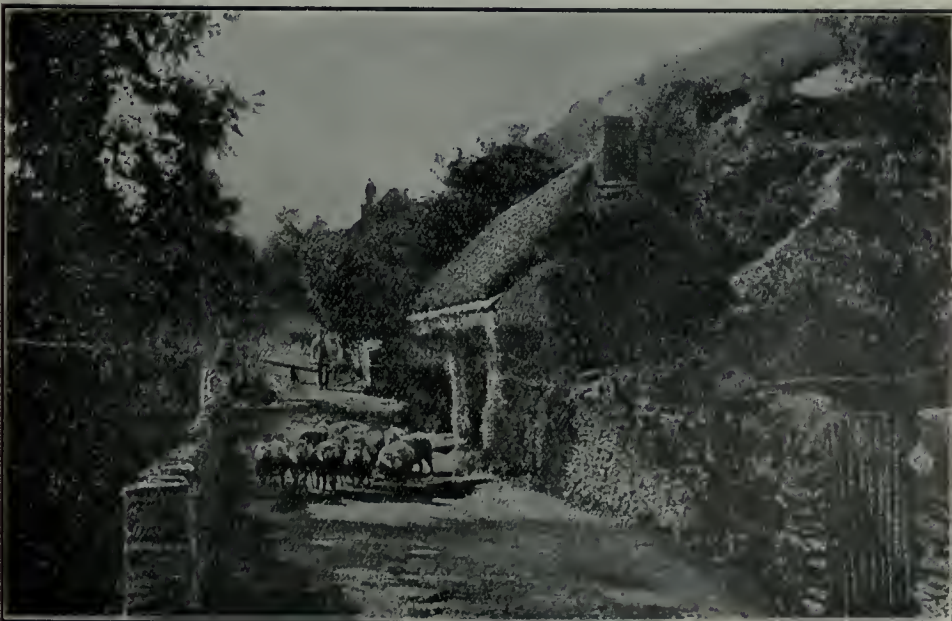
green doors and lattices, and the general effect is curiously foreign looking."

It was most surprising to us as Canadians to see every little dooryard in an English town closed in with a stone wall or iron gate and the little plot crowded every inch with blooming flowers. In especial prominence we noticed the fuchsia growing like a shrub in the open, and laden with crimson bloom; and the Thos. Hogg hydrangea—with us grown only in pots and tubs—there a hardy garden shrub, laden with huge tresses of beautiful pink.

The Popular Sweet Pea

A. V. Main, Almonte, Ont.

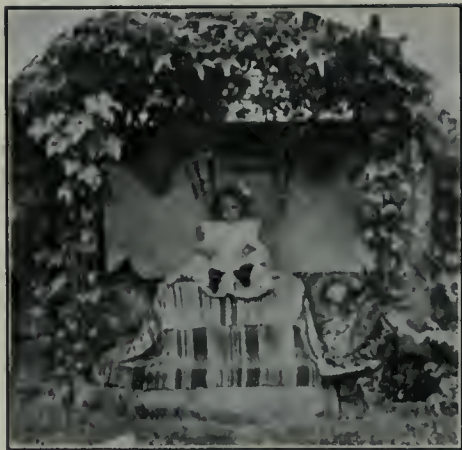
To get early bloom in sweet peas and to give the plants a good start prior to a dry spell, early sowing is advisable. An open position free from severe winds and where the sun will not be blazing on them constantly from rising to setting, is suitable. Poor, thin soil will not be satisfactory. Plant in fairly good garden soil. Dig out a trench the desired length, about the depth and width of a spade. In the bottom put about six inches of good manure. Throw the soil on to it and fill up the trench. Allow it to settle for two or three days. Draw out a drill two inches deep, down the middle of the pre-



A Picturesque Scene in Old England—A Devonshire Lane Near Lynton

pared trench. Sow the seed two inches apart, making a double row; thus, Cover the seed and rake off level.

Two mistakes in sweet pea culture are deep sowing and thick sowing. I never



A Little Girl's Vine-made Throne

An arbor made with vines, by Mr. W. A. Code of Ottawa, trained to form what he termed at the time "a throne" for his little daughter, who took great delight in playing "queen" in it. The climbers consisted of cucumber and morning glory vines, interspersed with asparagus beans, the latter combining utility with service. The print from the negative was not made square; this accounts for blank spaces at top corners.

practiced the system of sowing away down in a deep trench, filling up as growth advances. I let the roots do the work, and they will do it if the ground is treated correctly. It appears unnatural for sweet pea stems to have a foot of soil round their necks. After four inches of growth, draw some soil to them on either side. This will make a small drill on either side—an excellent provision for applying water.

Wire netting makes a good, permanent support. Give the plants assistance by entwining them around, running twine up and down where required. The best support is dead spruce branches sharpened at the butt end and put in on each side of the row with the inclination to meet at the top. Then use one cord to encompass the whole concern, and the work is done.

Watering will do much good, if it is done thoroughly to reach the roots and not a mere surface spray. When the blossoms first peep out is the time to use water. Use the scissors also, for the more you cut the more they bloom.

A good mixed package of seed from a reliable source is satisfactory. To those who grow these flowers more extensively, individual sorts grown separately give a double attraction for decorative purposes. Of the hundreds of varieties catalogued, the following comprise a suitable choice and have proved to be good growers in this locality: Lady Grisell Hamilton, Dorothy Eckford, King Edward VII., Queen Alexandra, Navy Blue, Blanch Burpee, Miss Wilmott,

Gladys Unwin, Hon. Mrs. E. Kenyon, America, Helen Lewis and Henry Eckford.

The Japanese Lilac

Prof. H. L. Hutt, O. A. C., Guelph

One of the most popular and generally grown shrubs in cultivation is the lilac. This is not a native of this country, but has been introduced from Europe and Asia. There are now nearly a dozen distinct species which have been brought to this country, and scores of varieties have been developed. In the last report of the horticulturist of the Central Experimental Farm, Ottawa, reference is made to a collection of 177 varieties in the arboretum at that place, and a list is given of twenty-five of the best, including single and double varieties ranging in color from pure white through pinks and reds to lilac and purple.

The Japanese lilac (*Syringa Japonica*) belongs to a species not so well known as most other varieties, yet is well worthy of a place in any collection. It is about the only one of the lilacs which may be said to form a real tree, as it sometimes attains a height of twenty-five or thirty feet. Although it comes from Japan, it is quite hardy in this country and is not affected by the mil-

dew to which the common varieties are more or less subject. It is of an erect habit of growth and does not branch out as freely as other varieties, hence does not make so good a specimen plant, but is best suited for background in the border, where its more or less naked branches may be hidden with foliage of other shrubs.

The bloom of the Japanese lilac is quite distinct from all others, being of a creamy yellow color and produced in large, loose panicles often a foot or more in length and nearly as much in breadth. It is also the latest of all varieties to bloom, being at its best usually about the first of July. With a good selection of varieties of the *Syringa vulgaris* type which usually begin to bloom about the 24th of May, followed by the *S. Josy-kæa* and *S. Japonica*, a succession of bloom may be maintained throughout the whole month of June to the first week in July.

Annuals must make quick growth. Have the soil well prepared and rich. Supply plenty of moisture.

Although not specially beautiful in foliage, flower, or fruit, the wild cucumber is an excellent hardy vine for arbors and covering fences.



Among the Most Beautiful Subjects for Lawn and Park Planting are Many Species and Varieties of the Lilac

Lawn and Garden Hints for May

THE enthusiastic amateur will find lots to do in May. Many kinds of seeds and plants may be started in the open. Have the ground well prepared and enriched. Dig deeply, remove all stones and rubbish and pulverize the soil thoroughly. Before starting to plant or sow, have the plot or beds raked level. Be neat in all that you do. Owing to the earliness of the season this year, much of this work has been done already.

THE KITCHEN GARDEN

The soil for vegetables should be broken finely and to the depth of the spade. Work in a liberal application of barn-yard manure, and wood ashes also, if they are available.

Onions, peas, spinach and other hardy vegetables may be planted as soon as the ground is fit. Leave cucumber, corn, squash and the tender kinds until all danger of frost is passed. Sow the seeds in moist or freshly stirred soil. Do not plant too deeply.

Sow radishes in good rich soil in order to have quick growth. For a succession, sow some seed every ten days or two weeks.

An excellent vegetable and one that is not much grown is salsify. Sow the seed early, and handle the same as parsnips.

Do not over-water plants in the hotbed and give plenty of ventilation.

THE FRUIT GARDEN

When the strawberries commence to grow, remove the mulch and place it between the rows. Should frost threaten at blossoming time, the mulch may be replaced over the plants until danger is past.

If your strawberry patch is more than two years old or if you have not yet grown this fruit, plant this month. Take strong plants from the old patch or purchase from the nurseryman. Have the rows at least three feet apart and place the plants about eighteen inches apart in the rows.

Plant currant, gooseberry, raspberry and blackberry bushes if there is room for them. Plant them about five feet apart.

THE FLOWER GARDEN

Flowers that have been started in the house should not be transplanted to the open ground without first being hardened-off. Gradually introduce the plants to the changed conditions by placing them outdoors each day for a few hours. Seedlings that are crowded in the boxes or in hotbeds should be transplanted to other boxes or to cold frames. Cannas, coleus, crotons, alternantheras and plants of similar nature should not be planted out until after the first of June.

When the ground is ready, sow seeds of nasturtiums, balsam and portulaca, sweet peas and other hardy annuals. Do not sow the seed thickly. Hardy annuals

should be thinned before they get crowded.

Gladioli may be planted towards the end of the month. Place the bulbs three or four inches deep and about six or eight inches apart in rows or clumps. Dahlias also may be planted late in May, but it is better to leave them until June.

Plant out perennials and biennials that were wintered in cold frames. Divide old clumps of perennials and when transplanting remove all weeds in order to save further trouble. Old perennial borders that are renovated in this manner will lose little in effect if the spaces are filled with annuals this year and until the permanent plants once more require the room.

Plan to cover with climbing plants, bare places on house, verandah, fences and out-buildings. Morning glories, sweet peas, nasturtiums, wild cucumbers and

work of making new lawns should be done thoroughly. Success depends largely upon the preparation and character of the soil.

The Best Dahlias

At the last convention of the Ontario Horticultural Association, the nomenclature committee presented lists of the best perennial phloxes, irises, gladioli and dahlias. For the benefit of lovers of the last named, the list of dahlias is herewith published:

SHOW DAHLIAS

A. D. Livonia.—Quilled clear pink.

Arabella.—Light sulphur shading to peach.

Emily.—Solforine with white markings.

John Walker.—Pure white, like a large snowball.



Front View of Residence and Grounds of Judge Klein, Walkerton, Ontario

many other things are useful. One of the best vines is *Cobea scandens*. This may be started in the house from seed or the plants may be purchased from florists.

When the spring bulbs are done flowering, it is best if possible to allow the tops to wither and die before taking up the bulbs. If it is necessary to take them earlier, however, the bulbs should be lifted and heeled-in just below the ground in some place out of the way and left there until July.

ON THE LAWN

Repair bare spots on the lawn, either by seeding or sodding. Lawns that have become thin in the turf, should be well raked and sown with some good lawn mixture. A little nitrate of soda sprinkled on the lawn will stimulate the grass where the growth is weak.

As the lawn is a permanent fixture, the

Frank Smith.—Purplish maroon, topped white.

Glory de Lyon.—Creamy white, very large.

Leader.—Best dark rich purple.

Joseph White.—Rich velvety maroon, shaded to jet black.

Duchess of Cambridge.—White suffused pink edged and tipped purple.

Queen of Yellows.—Primrose yellow.

Mrs. Gladstone.—Delicate soft blush, grand form.

Prince Bismark.—Puce, short with purple, large.

Mrs. Browning.—Buttercup yellow, tipped snow white.

Mrs. Dexter.—Rich salmon, very large.

Red Hussar.—Intense scarlet crimson, very good.

CACTUS DAHLIAS

Dreadnought.—Dark crimson ma-

roon, a large flower and one of the best darks.

J. H. Jackson.—Brilliant crimson maroon, free.

Floradora.—Rich crimson, one of the best.



An Idea for a Bed of Nasturtiums

Sow the seed around the edges of a circular bed. In centre of bed place a pole. From top of pole to edges of bed run strands of twine up which the vines will climb.

Kriemhilde.—Delicate pink, shading to white at the centre.

Winsome.—Creamy white, good size and form.

Flora.—Large white, grand for cutting.

Wathari.—Light sulphur yellow in the centre, shading to nearly white at the edges.

Mrs. H. J. Jones.—Bright claret, with cream colored edges, sometimes a self color.

Royalty.—Lavender, large and handsome.

Standard-bearer.—Rich, fiery scarlet.

General Buller.—Cardinal red, tipped with white.

Ruckert.—Blood red with darker shadings, grand.

Countess of Lonsdale.—Salmon pink and amber, standard variety.

Florence M. Stredwick.—A large pure white.

Prince of Yellows.—Rich canary yellow, large, fringed at the tips of the petals.

Rother.—Large bloom, bright garnet, one of the best.

DECORATIVE DAHLIAS

Grand Duke Alexis.—White, tinged with soft lavender, quilled.

Madam Van den Dale.—Soft rose, with deeper markings and shading to cream white in the centre.

Admiral Dewey.—Rich purple, free bloomer.

Black Beauty.—Deep velvety maroon, almost black.

Mrs. Roosevelt.—Delicate pink, large and good form.

Mrs. Winters.—Snow white, large, good form.

Oban.—Lavender, overlaid with silvery fawn.

Pearl.—Beautiful white, good for cutting.

Lemon Giant.—A large lemon yellow.

Sylvia.—Mauve pink, changing to white in the center, one of the best to cut some call it a show dahlia.

Wm. Agnew.—Dazzling red, one of the best.

Nymphæa.—Light shrimp pink, tinted lighter under the center, a beautiful flower.

POMPON DAHLIAS

Ailet's Imperial.—Creamy white, reddish tips.

Darkness.—Velvety maroon.

Elegante.—Soft pink, tipped deep pink.

Gold Hahnchen.—Primrose Yellow.

Kleine Domitea.—Orange buff.

Little Bessie.—Creamy white, quilled.

Little Herman.—Deep red, tipped white.

Little Prince.—Currant red, tipped white.

Snow-clad.—The best white.

SINGLE DAHLIAS

Crimson Century.—Velvety crimson.

Maroon Century.—Velvety maroon.

Pink Century.—Soft pink, large.

Claret Century.—Brilliant scarlet.

Lavender Century.—Lilac, light shadings.

Twentieth Century.—Rosy Crimson.

White Century.—Pure white.

Asparagus Beetles

Arthur Gibson, C.E.F., Ottawa

The common asparagus beetle has only once been recorded from the Ottawa district. This was a few years ago when a few of the larvae were collected at the Central Experimental Farm. These grubs are of a dark olive green color and slug-like in appearance. The beetle is a slender blue-black insect about one quarter of an inch long, with six white blotches on the back and a red border to the neck and wing-covers.

The other asparagus beetle, viz., the twelve-spotted asparagus beetle, often occurs with the above. It is slightly larger and of a uniform reddish orange color, with twelve black spots upon the wing-covers. The grubs of this beetle are of a dirty yellowish color. Those of the common asparagus beetle feed upon the foliage, as do those of the twelve-spotted asparagus beetle, but the latter destroy chiefly the berries or seed capsules.

The remedies recommended are to dust the infested plants every three or four days with fresh air-slaked lime, which adheres to the slimy bodies of the grubs and kills them.

Paris green and flour, or Paris green with slaked lime, dusted on the plants will destroy both larvae and beetles. If poultry are allowed to run among the beds it will be found that they will devour a great many of these insects, particularly when they first appear in spring. When it is noticed that the berries are being attacked, the whole plants should be cut down and burned.



These Grounds Won First Prize Two Years in Succession in a Horticultural Society Competition

The large vine on the verandah is a Clematis paniculata and the one at the end is a Hall's honeysuckle. In the corners on each side of the front steps are tuberosa begonias. The window boxes contain mostly geraniums, petunias and foliage plants with hanging vines of vincas; there is a canna on each side and a caladium in the centre. The whole effect is very pleasing, but unfortunately just before the photograph was taken, the tree in the foreground on the street was bent over by a storm. Residence of Mr. N. B. Vrooman, Walkerville, Ont., a member of the horticultural society of that town.

Planting and Managing Onions

A. C. Dart, Grimsby, Ontario

ONIONS succeed best in an open situation in rich loam, but good crops may also be obtained from soils of very different texture and quality with the aid of suitable manures. Plenty of farm yard manure should be worked into the ground as deep as possible in the autumn and left roughly during the winter.

In the spring as soon as the soil is dry, so that its lumps will crumble rather than stick together, it should be well worked. It cannot be worked too much for onions.

Salt, soot and lime worked into the soil before sowing are useful as manure and also for preventing the attacks of the onion maggot and other insects. A good fertilizer for onions, applied at the following rate per acre, is: Sulphate of potash, 200 pounds; basic slag, 500 pounds; nitrate of soda, 300 pounds. Work the basic slag into the ground in the fall, the sulphate of potash before

Thinning should take place early. A small two-inch hoe is useful for this purpose.

In order to have extra fine onions, sow the seed in boxes in February or early in March and place in a greenhouse or hot-bed. Prick off as soon as ready in flats, or when large quantities are wanted, prick off in hotbeds. Keep them near the glass and sprinkle them overhead on all fine days. When hardening off, plant out in well prepared ground. Select a dull day for planting.

Selecting good reliable seed is of great importance in onion culture. Good English varieties are Leamington Giant, Cranston, Excelsior and Somerset Hero; the best Canadian varieties are Giant Prizetaker, Selected Yellow Danvers, Large Red Wethersfield and Southport Yellow Globe.

For preventing the onion maggot, use salt, soot and lime forked into the soil

be taken to cut the potato so as to get as much of the fibre running from the eye to the centre as possible. Through this fibre the eye will get its sustenance until sufficient growth has been made to take care of itself.

In planting, the potatoes should not be exposed to the sun for any length of time, or blanks will be numerous. After the ground has been put in good order, shallow cultivation is best. The ground cannot be kept too clean, neither can it be worked too often, even until the vines are nearly covering the rows.

Starting Seedlings

Prof. W. S. Blair, Macdonald College, Que.

The tendency is to crowd plants in the seed flat by thick seeding, and this too often is followed by giving the pricked off plants about half the space they should have. Plants in the thickly-seeded flat become spindly at the start and make at best rangy and undesirable stock. Plants from thin seeding are (providing proper temperature and light is given) stocky, short-stemmed and can remain in the flat a longer period without injury before transplanting. Overcrowded seedlings are much more difficult to handle, and are not nearly so satisfactory.

It is wise to maintain a temperature of forty-five to fifty-five degrees for cool-season vegetables such as cabbage, lettuce, etc., and fifty-five to sixty-five degrees for warm-season vegetables such as tomatoes. During a bright day with the full benefit of the sunlight the temperature may go much higher than this and not cause drawing of the plant, but on dark days and at night the temperature should be kept down, otherwise spindly and weak plants will be obtained. I prefer a forty-five-degree night temperature for cabbage and a fifty-five-degree for tomatoes, rather than higher. It takes longer to develop plants at a low temperature, but the quality of the plants and their root development more than offset this objection.

Cabbage and cauliflower should be spaced two inches apart for early stock, and closer planting may be followed for later stock that it may not be necessary to carry so long in the flat. Place celery one and one-half inches apart.

Tomatoes should first be pricked off into flats two inches apart and two weeks later put into flats four inches apart or single plants into the three-and-one-half-inch pots. I believe three-and-one-half-inch earthenware flower pots which cost about seventy-five cents per 100 are the most economical for handling tomatoes for the early crop. These pots can be used year after year. It requires about seven to eight weeks to develop a good tomato or cabbage plant



Sowing Onion Seed—A Well-Prepared Seed Bed is Necessary for Uniformity in Catch

sowing in the spring and the nitrate of soda during the growing season preferably in two applications, at an interval of ten days to two weeks.

The ground should be made as level as possible before sowing. The precise time cannot be stated, as it greatly depends upon the state of the weather and the nature of the soil, but the first opportunity should be seized when the soil is workable for sowing.

Sow in drills twelve inches apart. The seed cannot be too near the surface, as long as it is covered. If the soil is light, it should be rolled with a roller of greater or less weight according to the nature of the soil.

As soon as the seedlings are up, hoeing will be necessary to keep down weeds, and to keep the surface soil stirred. Although the growth of the young plants may be promoted by shallow stirring, the deep loosening of the soil so beneficial for many crops is not desirable for onions.

before sowing. Charcoal is sometimes used for preventing canker. Sulphur spraying during the growing season will keep mildew in check. Good cultivation is the best preventive for all diseases.

Potato Culture

John N. Watts, Portsmouth, Ont.

To get the largest crop of any variety of potatoes one must first get the land in proper condition. Do not plow when the ground is so wet that the furrow shines. Roll and harrow until the ground is well pulverized. Work in plenty of manure, but never put it in the furrow in which the potatoes are to be planted.

When the ground is ready, draw the furrow, and cut the potatoes so as to have at least one good eye to the cut. The seed end should be cut off first. A good eye is one that has not sprouted. Suckers may form around the eye, but will be weak.

To get the strongest stalk, care must

for setting outside, the last week of which the plants should be set outside without protection to harden-off, providing, of course, in the case of tender plants that they are not allowed to freeze.

The hardening-off of plants—getting them used to outside conditions—is very important. The check a plant sustains from being removed from warm quarters to field conditions is great and can be avoided by gradually hardening-off.

Managing the Asparagus Bed

A. V. Main, Almonte, Ont.

I prefer to disturb the asparagus bed in the fall rather than in spring, especially a belated spring when the growths peep up almost before the snow is gone. About the last work in the garden in fall, when the asparagus growths are yellow and the sap returned to the crowns, cut close over and burn. Remove a couple of inches of soil or more from the surface. This takes away sour soil and insect eggs. Apply a dressing of well-spent manure and soil mixed and over this, six inches of strawy manure or leaves with branches to keep it down. This provides the winter garment.

At the end of April, weather favorable, remove the straw and tidy the bed. Keep it within the limits by the spade on each side. Slightly fork over the surface; a spade should never be used, for the roots have ransacked the soil in all directions.

With the approach of mild weather, give a dressing of salt—about one pound to each ten square feet at intervals, say May 15, May 30 and June 15.

We generally cut about May 10 and continue until June 20. Short, stubby stalks about six inches long are the best, measuring three-quarters of an inch to one inch at the base. Cut these as far below the surface as possible. Tie in a bunch and cut the ends even.

Allow a fair proportion of growths to come up to strengthen the crowns for the succeeding season.

Seed can be saved in the fall when red, sown in spring in drills two inches deep and thinned to six inches, allowing them to remain two years prior to planting.

The asparagus is valuable not only as a vegetable, but also as green material for decorating flower vases, and so on. It adds a charm to cut blooms. The side growths are best. No harm is caused by the cutting.

If we had never seen any weeds, the necessity for cultivation of soil would not be nearly so apparent to the majority of gardeners. It is now a well known fact, however, that frequent cultivation is needed to keep the soil moist, even if weeds never appear. The drier the soil and weather, the greater need for surface cultivation.

How to Grow Good Celery

F. W. Hack, Norwood, Manitoba

WHEN the time approaches for planting celery in the field, the plants should be gradually hardened by exposure to the weather. Celery plants when properly hardened will be unharmed by a moderate frost, and may be planted out from the middle of May to the beginning of June. The land should be well cultivated and finely pulverized.

If possible, dull or rainy weather should be chosen for planting. The plant bed should be well watered before removing the plants and care must be taken to avoid injuring the roots. Shallow pans are convenient for handling the plants, and in hot, dry weather a little water in the pans will prevent wilting. If the weather is dull and the soil is moist, it will not be necessary to water the plants when set out; but if it is hot and dry, a good watering should be given and as soon as the ground is dry the surface should be stirred to prevent baking. Watering the young plants is apt to pack the soil too tightly around their roots and should not be done unless necessary.

Celery should be planted in rows three to five feet wide and four to six inches apart in the row. The width between the rows is to give room for cultivation and for soil to earth up with; four feet will be found the most convenient.

Some growers plant in double rows. This is not advisable, except in very rich soil and where water can be artificially supplied.

The old method of growing celery in trenches is not now generally used. The labor of preparing the trenches and the increased difficulty of cultivation renders this method unprofitable commercially. Where level culture is practiced, the rows should be slightly furrowed, so that the celery when planted should be a few inches below the level of the land. This will start an upright growth.

Frequent shallow cultivation should be given from the time of planting throughout the growing period. The surface should be well stirred twice a week during dry weather and after a rain as soon as the ground is dry. When the roots of the celery begin to spread, cultivation should be shallow near the plants.

When the plants have been out two or three weeks they must be gone over carefully by hand, the soil around and between them loosened and all weeds removed. The plants must never be allowed to spread over the surface of the ground, and enough soil must be drawn up around them to secure an upright, compact growth. This process should be repeated as growth continues. Do not let any soil fall into the hearts.

When the plants are nearly full grown

the earth should be drawn up to half the height of the plant, and one week later nearly to the top of the leaves. The blanching process will take from ten to thirty days, according to variety.

Celery that is intended for storing should be planted a little later and not moulded up so much. It will keep better if not quite fully matured when dug, and if green will blanch in storage.

Growing Peppers

E. E. Adams, Leamington, Ont.

There is no trouble in growing peppers, as they grow about as well as cabbage or any other plant. Seed is sown in flats in the greenhouse on or about March 1, and strong bottom heat is maintained until seed is well up. When in the fourth leaf, the plants are pricked out to flats and given a space of about two inches square, and are grown in these flats until taken to the field for setting. Be sure and keep the soil moist, as peppers appear to require a large amount of moisture; if seed is not kept moist, or if kept too wet, it will not sprout properly, and sometimes will decay.

In preparing the field soil for the crop, I use about ten two-horse loads of well-rotted manure per acre, either plowed in or harrowed in after the ground is plowed, according to whether the manure is fine or coarse. The ground is marked out in rows three feet apart, and the plants are set about twenty inches apart in the row. Good and frequent cultivation is given by a one-horse hoe or a twelve-tooth cultivator to keep the top soil very fine and to hold moisture.

About ten days after planting, a dressing of 100 pounds per acre of nitrate of soda is sown broadcast and worked into the soil, and sometimes, if we are not too much rushed with work, the soda is put around each plant in place of broadcast. The latter is the much better plan if possible to get it done, as the plant then gets all the nitrogen very soon after being put on. Another application of the same quantity is given about three weeks later, and this is sown broadcast. The first of June is our usual time for planting in the field. Anyone should be able to grow peppers successfully with very little trouble.

Stir the ground frequently around onions, especially after every rain.

The need of co-operation in marketing and shipping fruit seems to be getting well into the minds of most of our orchardists in Nova Scotia. The producers are too much at the mercy of the agents of steamship lines and English brokers.

QUESTION AND ANSWER DEPARTMENT

Sickly Cherry Tree

Is a white English cherry tree about six years old worth preserving? It has gum oozing from cracks in several places.—L.H.W., Toronto

While it is likely that the tree will continue to get more sickly and will eventually die, it may live for a number of years, and if the space is not needed, it might be left until it shows that it will not recover.

St. Lawrence Apple

In my orchard, I have two rows of St. Lawrence trees which are not bearing. They are about 20 years old, strong and healthy, over eight to nine inches in diameter, and in good, well fertilized soil. They have Wealthy, Duchess and Red Astrachan and other varieties all around them, all of which bear abundantly. But the St. Lawrence simply puts on a great growth of wood and bears no fruit. I would like to know if my experience is unique and if any of your readers could tell what to do to get fruit from them. My orchard is situated at Alabotsford, Que., about 45 or 50 miles east of Montreal.—S. P. R., Montreal.

The St. Lawrence apple is not, as a rule, a good bearer, and that is one reason why it is not more grown. Our experience here confirms this. Under some conditions, however, the St. Lawrence bears well every other year. It is naturally a strong growing tree and in order to get it to fruit better we should suggest that the growth be checked, if possible. If the ground is being cultivated, we would suggest leaving it in sod. Some summer pruning might also be done in order to check the growth. The case in question seems to be an extreme one, but, as stated before, the St. Lawrence is a naturally shy bearer.—W. T. Macoun.

Setting out an Orchard

1. What distance apart would you plant standard apple trees?

2. Would it be advisable to plant a row of cherry trees between rows of apples; also to plant raspberries along row of apple trees, so as to get a crop of small fruit while apples are growing?

3. In cropping the land would corn or turnips be better than potatoes for hoe crop? Have been told that potatoes were hardest on trees.

4. Is potash fertilizer good to use around young trees? My ground will be plowed out of clover sod this spring.—W. H. C., Searboro, Ont.

1. Standard apple trees usually are planted from thirty-five to forty feet apart.

2. Cherries may be planted between the rows and raspberries also, provided that soil fertilization and cultivation are well looked after. Remove these fillers as soon as the apple trees require the space, say, in ten or twelve years.

3. Any of these crops may be grown in the orchard the first three or four years.

4. Potash is a necessary element. Its use depends upon nature of soil. Forty bushels of unleached hard-wood ashes to the acre probably would improve the clover sod.

Keeping Mushroom Spawn

Is mushroom spawn any good if kept over from one season to another?—E.R.W., Fort William, Ont.

Mushroom spawn will keep for a number of years in a cool, dry place. Dryness is an essential.

Acid Soil—Strawberries

1. What test can be made by fruit growers to ascertain whether a soil is sour or not?

2. Does new land, lately covered by fir and birch, require fertilizing?

3. How many crops should a strawberry patch yield? In planting a new patch should new plants be purchased?—M. C. M., Salmon Arm., B.C.

1. Get a piece of blue litmus paper from a druggist. Select a place in the orchard where the soil is moist and insert the paper. If paper remains blue, the soil is alkaline; if it turns red, the soil is sour or acid. This simply determines the fact but not the degree.

2. The quality and luxuriance of the crop grown on this soil will tell whether or not it needs fertilizing. Virgin soils vary in fertility like other soils. It is probable that the soil referred to is rich enough to start with.

3. As a rule, one crop from a commercial plantation is enough. Fertility of soil, freedom from weeds, nature of plant growth and fruit yield will tell whether or not the patch may be fruited more than once. When starting a new patch use strong, well-grown young plants, whether dug from the old patch or purchased. If you have a satisfactory variety, best results probably will be had by using plants grown on your own place.

Trouble with Dahlias

I have been trying to grow a few dahlias in the back yard, but without much success. The soil was originally clay, but has been well manured and dug so that it is now quite friable. The roots have been slow in growing and the buds have, after forming, failed to develop. I have had good results with all other flowers, and would be glad to have any suggestions you can give. Does this soil need some other treatment? Does it retard a plant to cut out a branch?—D.A.G., Toronto.

Dahlias should be made to grow fairly rapidly. Keep the surface soil well stirred. Water occasionally, soak the

ground when you do it, and cultivate the next morning. Do not use barnyard manure too liberally. Better use, late in the season, bone meal four parts and nitrate of soda one part, or liquid manure. Commence to feed as soon as the plants show flower buds. Often the buds are attacked by the dahlia "bug." It is not very troublesome in cool, moist seasons. In any season, the later dahlias are started the greater the chance of freedom from this pest. It is difficult to control; try spraying with soapsuds. Removing a branch will stimulate growth rather than retard it. Some growers leave only one stalk; this is pinched back when two or three pairs of leaves appear, in order to cause the plant to branch. Others allow two shoots to grow and no more; the remaining ones are removed as soon as they appear.

Plants Identified

1. Kindly tell me the name of a plant about six or seven feet high which is covered some distance down the stem with tassel-like red flowers. A sample is enclosed. This was picked just before frost.

2. What is the botanical name of the maple tree from which the leaf is gathered which you will find in the package with the other enclosure. Is this the species that has the brightest foliage when frost comes? If this leaf cannot be identified, please give the name of the maple that has the most brilliant foliage in the fall.

3. What is the correct name of a creeping plant commonly known as "creeping Charlie?"

4. By what name do florists know a plant often called "patience"?—Mrs. P. E. H., Toronto.

1. This plant is princess feather or kiss-me-over-the-garden-gate (*Polygonum orientale*).

2. The maple leaf enclosed appears to be a leaf of the red maple (*Acer rubrum*) though it is almost impossible to be sure about the determination from only one leaf. The red maple (*Acer rubrum*) is the maple which shows the most brilliant colors in the fall, especially in early fall. The hard, or sugar maple, however, also becomes very brilliantly foliated in the fall.

3. The correct name for the plant known as creeping Charlie is ground ivy, or gill-over-the-ground (*Nepeta Glechoma*). This is a nasty little weed in lawns.

4. The plant which is known to many florists as Patiens is the plant *Impatiens*, which is, through some mistake, often called Patience. The name of the plant of this genus grown in cultivation is *Impatiens Sultani*. There is another plant belonging to the Dock family, which is also called patiens, but this, we think, cannot be the plant you refer to.

The Canadian Horticulturist

Published by The Horticultural
Publishing Company, Limited

PETERBORO, ONTARIO



The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO
QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD
ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director
A. B. CUTTING, B.S.A., Editor

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.
2. Subscription price in Canada and Great Britain, 60 cents a year; two years, \$1.00. For United States and local subscriptions in Peterboro, (not called for at the Post Office) 25 cents extra a year, including postage.
3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than \$1.00.
4. Change of Address.—When a change of address is ordered, both the old and the new addresses must be given.
5. Advertising Rates quoted on application. Copy received up to the 18th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.
6. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT.

Since the subscription price of The Canadian Horticulturist was reduced from \$1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with Dec., 1909. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Some months, including the sample copies, from 10,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

January, 1909.....	9,456	January, 1910.....	8,925
February, 1909.....	9,310	February, 1910.....	8,967
March, 1909.....	9,405	March, 1910.....	9,178
April, 1909.....	9,482	April, 1910.....	9,410
May, 1909.....	9,172		
June, 1909.....	8,891		
July, 1909.....	8,447		
August, 1909.....	8,570		
September, 1909.....	8,605		
October, 1909.....	8,675		
November, 1909.....	8,750		
December, 1909.....	8,875		

Total for the year .107,638

Average each issue in 1907, 8,827
" " " " 1908, 8,695
" " " " 1909, 8,970

Sworn detailed statements will be mailed upon application.

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We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

SPARE THE WILD FLOWERS

The lure of the woods and the growing interest in nature study may prove to be a menace to our wild flowers. Many persons unconsciously do great injury to nature in their desire to acquire benefit. Many nature seekers gather great bundles of flowers that are destined to wither and die. There should be a personal, and possibly a legal, restraint to prevent this unwanton destruction.

Nature can best be studied and appreciated in her secluded haunts and not by robbing her of her plants and flowers. Indiscriminate and lavish collecting will exterminate many species of our native flora. Annuals and biennials suffer more than perennials. Specimens of some of the latter may be transferred with advantage to our gardens, but the collectors, even for this purpose, should not dig everything in sight and destroy a dozen plants for each one to be transplanted. We should gather wild flowers and plants with discretion. Reckless collecting is folly.

THE BROWN-TAIL MOTH

Although the brown-tail moth has not yet made any permanent appearance in any state or province on this continent outside of New England, it is almost certain to become established throughout the whole country if stringent preventive measures are not taken. Splendid work has been done in Nova Scotia to control it there and the Dominion entomologist and staff have taken means to prevent its introduction into all the provinces on nursery stock imported from France. In spite of these precautions, however, the pest is almost sure to become established sooner or later. It is practically impossible to inspect all the importations of nursery stock and the moth, being a strong, swift flyer, may be expected some time to gain entrance from the eastern states. The annual report of the Secretary for Agriculture for Nova Scotia states that large numbers of moths have been carried by winds from Massachusetts to Nova Scotia.

The brown-tail moth is a serious enemy to orchards, parks and forest plantations. Were it to become established in Canada, the greatest danger will be in private and public grounds in towns and cities, and in forests, as these are seldom sprayed and special methods of control will have to be adopted. In orchards, spraying in spring is one remedy although strong applications of poison are necessary, particularly in the control of full-grown larvae. A more practical means of control is to collect and destroy the hibernating nests. These are easily seen in winter at the ends of twigs.

Not only is the brown-tail moth a serious enemy of trees but it is dangerous to human health. Injury to man comes through hairs carried by the wind and dropped on hands or face, or by inhalation. Hairs are said also to collect on clothing hanging on the line and are thereby transferred to the wearers. The hairs are barbed and are covered with a poisonous secretion. They readily pierce the skin, causing an irritating rash and when in the throat cause trouble of a serious nature. Cases of death due to these hairs have been reported.

Citizens in all parts of our country can aid in preventing the establishment of the pest by sending to the Dominion Entomolo-

gist, Central Experimental Farm, Ottawa, any suspicious leaf clusters encircled by webs that they may see in winter or early spring. The moth itself is easily identified, being pure white (except that occasionally there may be a few black spots on the forewing of the male) with a tuft of brownish hairs at the tip of the abdomen, from which it gets its name.

Vigilance on the part of the authorities and thorough inspection of nursery stock, not only from abroad but also from the United States, are necessary in order that the first of these insects to appear in any locality may be detected and destroyed. There is danger also from nursery stock, originating in France and consigned to the United States, being re-shipped to Canada. There are many sources of infestation. No dependence can be placed on the inspection systems of European countries. If importations from infested areas cannot all be inspected at our nurseries it would be advisable to have them inspected at the ports of entry.

ADVERTISING VEGETABLES

Judicious advertising in newspapers is a good investment for market gardeners. It is a business advantage over other fellows who take chances in selling their products. A gardener may have a good trade without advertising but he can double and treble it by the use of printer's ink. If you think that people do not read the advertisements in the papers and that you would not get results, place the following "ad" in one of your local papers every day for one week: "Crisp Red Radishes—Five large bunches for ten cents—Delivered to every one who mentions this advertisement with name of paper to me—Offer open for one week, commencing May 9, 1910." Although the price is low the publicity will well repay you and you will learn something about the value of newspaper advertising.

Never sell anything that is not first-class. If you have any inferior products on your wagon, explain the situation to your customers and charge much less than the usual price. Have your vegetables graded; if in packages, have them just as good at the bottom as at the top. If a customer finds a spoiled specimen, give him his money back. Always give good measure and have all vegetables clean. Grow good stuff, market it in an attractive way, advertise these facts in the local press and you will secure new customers every day. It pays to advertise.

Fruit growers should keep a few hives of bees in their orchards in order to assure cross-pollination of the blossoms. Pollen is transferred from flower to flower by wind and insects. In some seasons, bees are the most important agents. A few colonies in the orchard will aid in getting better crops.

Some parts of British Columbia still grow apples unmolested by codling moth. The mountain-girt valleys are particularly adapted for repelling insect invasions. If the growers in such districts realize what is good for their pockets they will maintain a stern, unremitting watch for the first sign of this moth, which will come as surely as it has come to nearly every apple district on this continent. Prompt, concerted action whenever the moth appears will be worth thousands of dollars to the growers.

One of our subscribers in the Okanagan Valley, B.C., asks the following question: "Can any of THE CANADIAN HORTICULTURIST readers give the facts about how and just when the late Charles Arnold of Paris raised the Ontario apple? There seems to be a

dearth of information about this horticulturist although he left us such a fine apple." A biographical sketch of Mr. Arnold appeared in an appendix to the 1906 report of the Ontario Fruit Growers' Association but not much information is given about the origin of the Ontario apple. Can any of our readers answer the question?

PUBLISHERS' DESK

The illustration on the cover of this issue shows cherry trees in blossom in an orchard at Kelowna, B. C. High class photographs showing fruit and garden scenes in all the provinces are wanted for publication. The best of them will be used on the front cover and others that are good will be published on the inside pages. Send the best photographs that you have. If you want them returned, write the word "return" on the back of them and also your name and address.

The annual meeting of the Horticultural Publishing Company, Limited was held in Toronto, March 29, 1910. The financial statement for the year ending December 31, 1909, showed a considerable improvement as compared with that of the previous year. The company anticipates that the year 1910 will be the most successful in its history. The following officers were elected: Pres., W. H. Bunting, St. Catharines; vice-pres., J. H. Dunlop, Toronto; sec-treas. and managing director, H. B. Cowan, Peterboro; directors, A. W. Peart, Burlington; Harold Jones, Maitland; Hermann Simmers and P. W. Hodgetts, Toronto.

The April issue of THE CANADIAN HORTICULTURIST was another record breaker from an advertising standpoint. In spite of the fact that over two pages of advertising reached us too late for insertion, the value of the advertising carried again broke all records. This shows that the record made by the March issue was not just an "accident." Advertisers spend their money where they find they get results. Are you using THE CANADIAN HORTICULTURIST? If not, give it a trial. You will find that it reaches people who will buy your goods and who will pay for them. Last forms for June close May 20th.

Almost every month we are obliged to disappoint some of our advertisers whose copy does not reach us in time for insertion. The interests of our readers and advertisers demand that the paper shall be out on time, and it is not fair to keep 80 or 90 advertisers and 10,000 readers waiting because two or three advertisers are late in sending us their copy. Then, too, it is necessary that we fix the size of the next month's issue a week or ten days before it comes out. This limits the space that we can devote to advertising, and it frequently occurs that copy reaches us before the last form goes to press, but there is no room for it and we have to leave it out; or, copy reaches us when there are only two or three pages open, and we have to place the advertisement on one of these pages, whereas it might be much better displayed in another part of the paper if received earlier.

Will our advertisers bear the above in mind when sending copy each month, and let us have same early? It will assist us, and also be to the advertisers' own best interests. All our pages, with the exception of the cover, are open till the 12th of the month. Positions on the middle sixteen pages are not available after that date.

Selection of Nursery Stock

"Every fruit grower should be able to tell at a glance what age a tree is when it comes to him from the nursery," said Prof. J. W. Crow, when discussing the above subject at the short course in fruit growing at Guelph. "Every tree has on it marks which show plainly how old the tree is. The terminal bud of a branch is always protected during winter by a number of scales. In the spring the buds continue the growth of the tree and the scales drop off, but the scars remain and form a distinct ring around the limb or trunk, marking each year's growth quite plainly unless removed by cutting. Thus a tree one-year-old will show no ring of scars; a two-year-old tree will show one ring of scars at the junction of the one and two-year-old wood; a three-year-old tree will show two rings; and so on."

At the beginning of the second year the nurseryman cuts back his apple trees and trims them to the desired height to form the head. If he sells the tree at two years old well and good; if not, he may let it grow but more likely he will cut it back again to keep the head from getting too big. This means that he will remove practically all the last year's growth. Thus a year can be added to the age of the tree for every time the knife has been applied. The marks of the knife are always evident. A tree that has stood continuously in the nursery row for three to five years, as not unfrequently happens with certain varieties or when trade is slow, does not transplant with such certainty of success as does a one or two-year-old tree.

One-year-old, well grown apple trees are preferable for planting. In the first place they must be sturdy stock in order to attain the right size in a year. Then it is much easier to head a one-year-old tree low down than it is a two or three-year-old. These older trees are usually headed about three feet from the ground which is too high. A low-headed tree is preferable because the limbs tend to a more upright habit of growth, sun-scald is almost entirely confined to high, open-headed trees; it is much more economical to prune, spray and pick the fruit from such trees.

Before planting a considerable number of trees it will pay well, if convenient, to visit the nursery and choose your own stock. Choose one-year-old trees not less than 30 inches high. If you insist on having one-year-old trees you will get them. They will probably cost a little more because they have to be dug by hand as there will not be more than 50 per cent. of the trees in the nursery row fit for your purpose. Do not buy poor one-year-olds, as it is necessary with these to cut them off nearly at the ground in order to stimulate strong growth after they are planted.

Peach trees are nearly all sold at one year old. It does not pay to buy big No. 1 stock. Medium-sized No. 2 is better, as it transplants with greater safety and makes a better tree for low heading. If possible, buy peach trees with all their branches on them. Thus you will be able to head your tree just where you like. This will probably mean giving the nurseryman instructions a year ahead but it will pay.

It is good practice to grow your own nursery stock. Grow your seedlings or procure them from a nursery. Plant them in the spring in rows and cultivate as you would potatoes. In July bud these with buds taken from the very best bearing trees of the very best varieties in your locality. A very little practice will make any intelligent man a competent hand at budding as the process is simple. If you do not care to grow your own stock, buy trees that will make good

stock for grafting, such as Tolman or McMahon; after these have been set two or three years top graft with scions from the very best bearing trees of the desired variety to be found in your locality. There is as much individuality in a tree as there is in a dairy cow. Select your trees as you would select your dairy cows by breeding from the very best individuals you can find. The nurseryman cannot do this as he must select his scions wherever he can get them; but the fruit grower can easily mark the trees in his own or his neighbor's orchard that are giving extra big returns and can secure scions from these trees.—D.S.

Re Failure in Asters

The article in the April issue of THE CANADIAN HORTICULTURIST, in which Mr. G. A. Chase of Toronto tells about having trouble with asters, has resulted in various remedial suggestions being offered by readers of this magazine. The following was received from Mrs. R. J. Ella Baines, Toronto:

"In your April issue, page 90, Mr. Chase writes concerning an unknown cause of failure in his asters. As he has already hunted for root aphids and in his examination of the plants would have seen any other insect visible to the naked eye, may it not be that eel worm is the cause? These eel worms are an acknowledged enemy of the aster. They are microscopic; therefore not easily detected, and unfortunately they live in the soil.

"Mr. Pearson, in his work upon plant pests, says of these worms: 'They live in the soil and first attack the roots of a plant, afterward living in the tissues. A had attack can always be determined by an examination of the rootlets, which will be found to be knotty, or bearing small wart-like excrescences.'

"A plant so affected is considered incurable. The cure must be applied to the soil itself, in order to prevent further mischief. Would it not, then, be better this year to disinfect the soil in which the plants are to be placed? This can now be so easily and completely done by the use of Cooper's Apterite. It was recommended to me last year by a horticulturist from Ireland and seems to be absolutely successful as a soil disinfectant, acting without any injurious effects, rather as a fertilizer. I have obtained mine this year from Messrs. Cooper's agency in Toronto, 152 Bay street. Perhaps Mr. Chase would care to try it."

The trouble with Mr. Chase's asters and the suggestion that it may be due to eel worms was brought to the attention of Mr. L. Caesar, demonstrator in fungous diseases, O. A. C., Guelph, who replied as follows:

"I am inclined to believe that Mr. Chase is quite right about the trouble being due to a fungous, or else bacterial, disease attacking the stem near the ground where it evidently interferes with the flow of sap from the roots. I have seen one case of a similar disease to that to which Mr. Chase refers. Without examining plants, as in Mr. Chase's case, one does not care to recommend any special treatment. The treatment that he has been giving—that is, endeavoring to change the soil—would naturally appeal to one as the most intelligent under the circumstances. It is not likely there is any disease in the seed; otherwise, everybody who had this kind of seed would have the same trouble. As for the eel worms, so far as I know they are not at present a troublesome pest in Ontario."

From Mr. C. M. Bezzo of Berlin, Ont., comes a suggestion that may help to solve the problem. It is as follows:

"I believe the disease to be what is commonly called 'stem-rot.' It is a fungous

disease, which frequently has its inception in the seed bed, although not manifesting itself until the plant is ready to bloom, where it is found wilted and dying. The preventive is frequent stirring and drying of the surface soil about the plant at all stages of its growth, particularly during the early stages, and the avoidance of low damp and sour soil. Plants started in a hotbed are more liable to attack than those started in a cold frame or in the open ground. I do not think the best results can be obtained from asters started under such pampering conditions as hotbeds."

Lime-sulphur vs. Bordeaux

W. J. L. Hamilton, South Salt Spring, B. C.

It is interesting to learn what is being done in other parts of our Dominion, so I have read with pleasure the instalments of Mr. L. Caesar's articles in THE CANADIAN HORTICULTURIST. We have apparently, however, advanced further than Ontario in the practical use of lime-sulphur spray, as, with us, Bordeaux is superseded by it with great success, and to the great simplification of the spraying process.

In fighting the apple scab, the first thing necessary is either to remove or bury the dead leaves from the infected trees. This should be done just before growth starts in the spring, as it is at this time that the fungus, which has spent the winter on the decaying leaves, starts into active life, and produces its spores in profusion. Hence, the first cultivation should be given at this time, and, as an additional precaution, not only should the tree, but also the soil, be well sprayed with the lime-sulphur.

In using the ready-made spray, supplied by the manufacturers, we find it advisable to dilute with hot water, and at the same time to add about 10 lbs. of quicklime

to each 40 gallons of the diluted spray. This lime should be stirred in the spray, which should be used with the lime in suspension. The advantages of this added lime are twofold, for it not only adds to the efficiency of the spray, but it also indicates most clearly to the sprayer whether or not he has covered all portions of the tree. It offers also a mechanical obstruction to scale insects.

Bordeaux is troublesome to mix, and, if weather conditions become unfavorable (wet) it is liable to seriously injure the foliage and cause russetting of the fruit, whereby it is rendered unsaleable. This never occurs with lime-sulphur. As a fungicide, it is perfectly efficient, and as a solvent of the different gummy secretions by which insects attack their eggs to the trees it is unrivalled except by lye, (which should never be used in an orchard since it renders arsenical salts soluble). It also kills all soft bodied insects with which it comes in contact, and, as it can be combined with arsenate of lead, the whole spraying process can be much simplified.

Mr. Caesar says in his article: "It is almost certain that a soluble substance like commercial lime-sulphur would wash off more rapidly than Bordeaux." He has lost sight of the fact that the lime-sulphur is not a stable compound, and that half its efficiency is due to this fact, as it is the slow evolution of sulphuretted hydrogen gas, as the substance oxidises by exposure to the air, that kills the fungous growths, quite as much as its causticity does. Once the spray has had time to dry on the trees, subsequent rains will hardly remove it at all, as I have proved by experience.

Do you want a free book on "Amateur Fruit Growing?" See page 126.

Co-operative Buying of Supplies

At the short course in fruit growing at Guelph, Mr. P. W. Hodgetts, Toronto, brought out the importance of the co-operative buying of supplies for orcharding, by the following figures that show something of the quantities of spraying materials used by the co-operative spraying associations of Ontario: In 1909, these societies sprayed 5,700 acres and consumed:—bluestone, 52,000 lbs.; sulphur, 200,000 lbs.; lime, 32,000 lbs.; Paris green, 915 lbs.; arsenate of lead, 8,200 lbs.; white arsenic, 2,200 lbs. This represents only a small quantity of the supplies used by fruit growers in their business.

The St. Catharines Cold Storage and Forwarding Company bought nearly \$40,000 worth of supplies last year, including spray materials, packages, paper, hooks and covers, grape posts, wire, fertilizers, ladders, spraying machinery, etc. In spraying materials they bought 107,520 lbs. of sulphur; 2,500 bushels of lime; 4,080 gals. of commercial lime-sulphur; 6,000 lbs. of arsenate of lead; 200 lbs. of white arsenic; 300 lbs. of soda ash; 100 lbs. of Paris green, 800 lbs. of Bordeaux paste; and 12,600 lbs. of granulated bluestone.

As a rule, local merchants throughout the province do not deal in these articles. The result is that only a few druggists carry these goods and are thus able to charge exorbitant prices.

Nursery stock is another matter wherein co-operative buying is doing much good. Local agents charge altogether too much and, worse still, supply a poor quality of stock often untrue to name.

There are some difficulties to be overcome in co-operative buying. Managers and members of local societies must learn the value of business principles. They must learn to

APPLE TREES

HARDY STOCK

We still have a good stock of the following varieties for sale at \$30 per 100

Bismark	Spy
Ben Davis	Ontario
Duchess	Scarlet Pippin
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These are all splendid trees, order at once, before the kinds you want are sold.

Write to-day for Apples and any other Fruit Trees or Ornamental stock you may need.

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GRASSELLI ARSENATE OF LEAD

- ☞ It is an arsenical poison.
- ☞ This is what it is for:
- ☞ To destroy leaf-eating and chewing insects, such as the Codling Moth, Canker Worm and Curculio.

- ☞ Here is why it is better than White Arsenic or Paris Green:

- 1st. It sticks, ready to destroy the insects when they commence to feed. It also shows, so you may know whether or not your foliage and fruit is all covered.
- 2nd. It will not burn the foliage, even though used stronger than directions. (Have you ever figured the cost to you if an arsenical burned the foliage?)

Why You Should Use Grasselli Arsenate of Lead:

- 1st. Because it is a poison made by chemists whose business it has been to make high grade chemicals over 70 years.
- 2nd. It has been used in the Niagara section the past two seasons with best results.—Therefore, it is not an untried brand about which you know practically nothing.
- 3rd. The price is right. We charge a reasonable price for the Best.

WILL YOU SEND YOUR ORDERS EARLY TO

THE ST. CATHARINES COLD STORAGE & FORWARDING CO.

(ROBT. THOMPSON, President)

ST. CATHARINES, ONT.

OR SEND ENQUIRIES TO US

THE GRASSELLI CHEMICAL COMPANY
CLEVELAND, OHIO

provide a ready means of paying for supplies and to order early so that materials shall arrive at their places in good time. The older associations of the province whose credit is well established carry the accounts until fall and then deduct these from the sales of fruit. The younger local associations must grapple with this question and either provide working capital or make good their credit.

About four or five years ago a few far-sighted managers of co-operative associations formed a central association. At first all this association endeavored to do was to aid the 30 odd societies of the province in the matter of selling their fruit, by supplying them with weekly reports, during the growing season of the world's fruit crop with especial reference to the province, prospects in regard to prices and, in some cases, made sales for the smaller societies. In 1908, the central organization took up buying supplies. At once the question of a warehouse arose. This has been overcome by making one of the large associations a wholesale depot for the rest. This association buys in carload lots when the price is right and stores until wanted by the other associations.

There are still many things to work out. The central association, which is known as the Co-operative Fruit Growers' of Ontario, looks forward to becoming incorporated and building a storehouse. Success is plainly in sight.—D.S.

"Apple Growing in New England" is the title of bulletin No. 61 by C. D. Jarvis, Agricultural Experimental Station, Storrs, Conn. The history, status and future of the apple industry in these states are discussed. Much practical information is given also on the renovation of old orchards.

Lime-Sulphur Wash

An exceedingly valuable bulletin on the lime-sulphur wash has just been issued by the Ontario Department of Agriculture. The authors are H. L. Fulmer and L. Caesar, both of the Ontario Agricultural College, Guelph, where most of the experiments that are dealt with in the bulletin were conducted. An introduction is written by Prof. R. Harcourt.

A chemical study of this spray mixture is recorded by Mr. Fulmer. Home-made and commercial washes are dealt with fully, and some important conclusions are drawn. A practical and popular treatment of the subject is given by Mr. Caesar. Space in this issue does not allow the publication of extracts. A complete copy of the bulletin may be had on request to the Department of Agriculture, Toronto. Ask for bulletin No. 177.

Landscape Architecture

That the need for civic improvement is becoming recognized in Canada to a greater degree than ever is evidenced by the action of a number of cities in Ontario. These places have planned extensive improvements in their park systems, water fronts, river banks, residential districts and factory and business locations. Welland is the latest to contemplate this kind of work. A recent issue of the Welland *Telegraph* contains an excellent outline for commencing operations. The article is written by Mr. C. Ernest Woolverton, Grimsby, Ont., the well-known landscape architect, and is worthy of reproduction in the local papers of many other towns and cities.

The survey of the Welland situation was made by Mr. Woolverton, who has reported also on plans for London, Kingston, Weed-

stock, Barrie and other places. Mr. Woolverton has studied under a noted landscape architect in Boston, Mass., and while there assisted in improvement plans for Philadelphia, Pa., Munising, Mich., Wilkes-Barre, Pa., and other cities in the United States. He has superintended also landscape work on many private estates in Ontario. Mr. Woolverton's suggestions for improvement in Welland should be adopted by that hustling town. Most other towns and cities in the province would do well to look into this matter of civic improvement.

About Pruning

"Pruning," a paper read at a meeting of the Quebec Pomological Society by Mr. R. A. Reusseau, a graduating student of La Trappe, contained much valuable information. He thought more pruning should be done although he did not advocate severe pruning. It should be done in a moderate way every year and in this way do away with the necessity of doing severe pruning. He favored March pruning and did not think it necessary or advisable to do June pruning.

There are many reasons in favor of pruning at this season, but there did not appear to be any good reasons advanced for June pruning. Mr. J. M. Fisk thought June pruning the best and stated that the best results with him had been with pruning done during June. It would seem that March pruning is more suitable for the developing of more vigorous wood growth, but that June pruning can be followed to great advantage in bringing unfruitful trees in to bearing.

A new branch of the Imperial Bank of Canada has recently been opened at Nashville, Ont.

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14 Packets, Retail Value, 70c. (For One New Subscription).

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These Seeds are all of first quality and it is only by special arrangement with J. A. SIMMERS, Toronto, that we are able to offer this valuable collection of prize-winning seeds. They will be sent you **Free of Cost** for sending us only **One New Subscription** to THE CANADIAN HORTICULTURIST at 60 cents.

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Delightfully fragrant flowers, often two inches in diameter. Twelve tubers given for only **One New Subscription**.

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One Liliun Auratum, **One** Liliun Speciosum Rubrum and **One** Liliun Speciosum Album—all good bulbs—given for **One New Subscription**. Don't miss these.

Any **One** of the above will be sent you free of cost for sending us only **One New Subscription** to The Canadian Horticulturist at 60 cents a year. The entire Five Collections will be sent you for **Five New Subscriptions**. This is an exceptionally liberal offer, and you should take advantage of it at once. This offer is open up to May 15 only.

Note—The above collections are not offered for sale. The only way to secure them is by sending us **One or More New Subscriptions** to The Canadian Horticulturist

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The Aster you saw at Toronto Exhibition, which has never been beaten.

Colors, Enchantress, pink or white.
Trade package, 50c.

J. H. LOCK, 676 St. Clarens Ave., Toronto

Spraying Increases Profits

"If you neglect to spray your fruit you will not have success; spraying is the link between success and failure in fruit growing," were Mr. Farrand's initial words in the address he gave on "Spraying for Insects and Diseases" at the meetings of the Niagara Peninsula Fruit Growers' Association in March.

Different formulae had to be used in different emergencies. A mixture of four pounds of lime to six pounds of blue vitrol to 40 gallons of water, had proven a general remedy for many diseases. Black rot in grapes was prevented only by Bordeaux. The lime and sulphur mixture was efficient for San Jose scale and other fungous diseases. The peach has a tender foliage and the strong mixtures that plum, pear and apple foliage withstand, should be used with great care if put over the former trees.

Proper spraying is one of the preventives of fungous and insect pests if done at the proper time. A delay of a day or two may cause a loss of money. Results were obtained in proportion to the spraying done. "Put your mixtures on liberally," was the speaker's advice.

Different processes and utensils for the work were touched on. "There were men," said Mr. Farrand, "who believed that good results could be obtained by hand spraying, but this was not successful as tests had proven." The method took up an enormous amount of time; in fact, a power outfit would do the work three times over in the time it took a hand pump. The gasoline engine was, in his opinion, a satisfactory solution to the labor saving problem.—J. A. S.

Fruit growers, amateur and commercial, will find valuable information in book advertised on this page.

"Amateur Fruit Growing"

By Prof. SAMUEL B. GREEN
Of the University of Minnesota

A practical guide to the growing of fruit for home use and the market, written with special reference to a cold climate. Paper cover, 138 pages, illustrated.

This well written and useful book will be given as a premium for only One New Subscription to The Canadian Horticulturist. Send 60 cents and the name of a new subscriber to:

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FRUIT GROWERS

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CAMPBELL'S SPRAYS

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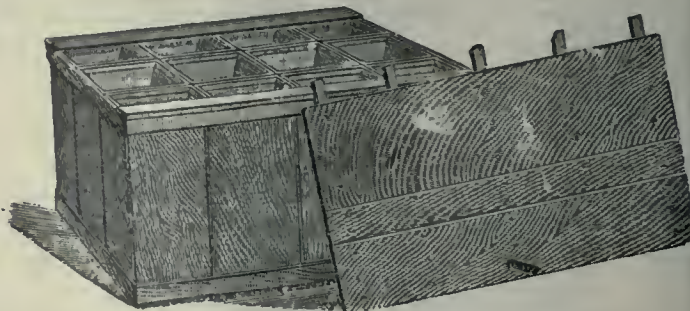
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We are Headquarters for
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Veneer supplied for the protection of trees from mice during winter

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DESTROY SAN JOSE SCALE

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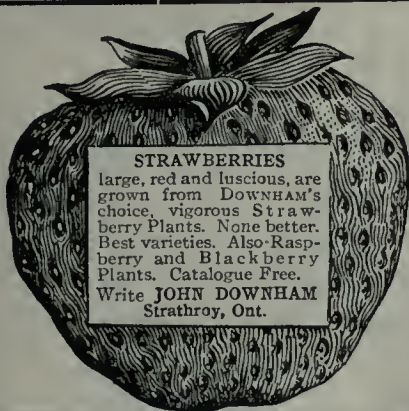
Originators **Salimene**. (Lime-Sulphur Solution) 1-100. At it fourteen years. An insecticide and fungicide. Better than Bordeaux Mixture.

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Looking over The Home Journal, you can scarcely believe it is the same magazine that you knew a year ago. It has doubled in size—in quality—in attractiveness. The Home Journal of to-day is a forty page monthly—a magazine of which Canadian women can justly be proud.

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MAGAZINES SENT TO ONE OR DIFFERENT
ADDRESSES

The Canadian Horticulturist
Peterboro, Ontario

Tomato Variety Tests

G. W. Bycroft, Byron, Ont.

The seed committee of the London branch of the Ontario Vegetable Growers' Association decided last year to grow five varieties of tomatoes under exactly similar conditions to determine which would be the most profitable to grow for the factory. The following varieties were selected: Pride of Canada, Royal Red, Clark's Jewel, Earliana and Plentiful. The first four varieties were sown on April 10 and Plentiful on March 10. Twenty plants of each were set out in the field in rows on June 10. Cut worms destroyed some of the plants. The number of plants left of each variety, date and weight of ripe tomatoes picked were recorded in tabulated form.

At last picking Earliana was practically denuded of fruit. Very few green ones were left on the vines. Most of the crop was gathered from Plentiful and Clark's Jewel, but the bulk of tomatoes was still left on Royal Red and Pride of Canada. The tests will be continued this year.

From the Agricultural Experiment Station at Lafayette, Indiana, we have received bulletin No. 138 on the San Jose scale. A description of this pest is given and suggestions on its control. The bulletin contains also reports of experiments with many commercial preparations that are on the market as remedies for this pest.



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An I H C spraying outfit is a year-'round money-maker. You can easily detach your 1 or 2-horse-power engine and use it to operate any machine you have on the farm—grinder, washing machine, saw, separator, churn, pump, etc. You know the reputation of I H C engines for simplicity, economy, dependability. They are making big money for thousands of farmers, gardeners and fruit-growers everywhere—and the fact that you can use your I H C engine for any purpose beside spraying, makes it invaluable to you.

Don't tie your money up in an outfit that can be used only for spraying purposes. Investigate the I H C line. We furnish blue prints so you may build your own spray wagon, tank, etc. Our valuable spraying book will interest you immensely.

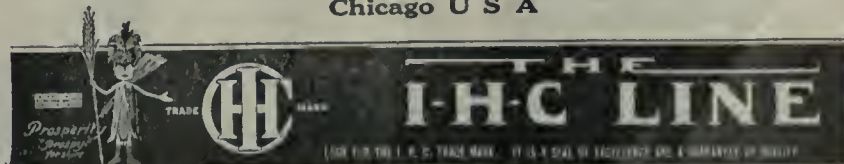
Take the matter up with the International local dealer who handles any of these lines and see about buying a spraying machine. He will supply you with catalogues and all particulars, or write the International Harvester Company of America at nearest branch house for these today.

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INTERNATIONAL HARVESTER COMPANY OF AMERICA

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Chicago U S A



NOTES FROM THE PROVINCES

British Columbia

At the convention of the British Columbia Fruit Growers' Association held at Victoria last February Mr. Rublee, a wholesale fruit dealer of Winnipeg, gave an interesting address on the marketing of fruit. He said that up to the present British Columbia had been able to consume its own fruit, but now that the production was increasing so rapidly, we must look for outside markets. The prairie provinces also have grown and, not being much at fruit production, are desirous of dealing with us. A great deal of the British Columbia fruit marketed in these provinces has been poor and poorly packed, which has naturally injured its success. Much of the fruit has looked unattractive and has arrived in poor condition. What is wanted for these markets is a standard pack of standard size and quality, and until this is attained, prices will not reach their maximum. Prunes have either been slack packed, causing bruises; or too tightly packed, whereby they are crushed. Instruction in packing is all that is needed to remedy this.

The operation of packing requires attention. The fruit must be in exactly the right stage, neither too ripe nor too green, to produce the best results. As to shipping cars, many carloads are ruined before leaving the siding. For instance, strawberries have been loaded without ice, with the result that on arrival at their destination every crate has been condemned and destroyed.

Always load with least possible handling and see that each crate is properly packed, stripped for ventilation and firmly braced. Fruit should be properly cooled and iced and then if the car is not over-filled, and if a space of at least two feet be left at the top for ventilation and a space in the centre between the doors, the fruit should reach its destination in good condition.

Mr. Rublee believed the transportation companies to be civil and considerate, giving good care and attention to the consignments in his experience. A higher charge for transportation is made for the more perishable fruits than for those which will stand the journey better. It is impossible to safely ship 20,000 pounds of strawberries in one

carload, 15,000 pounds, or even less, being about the limit. Mr. Rublee is not in favor of auctioning fruit as a means of selling it unless it is necessary to dispose of it quickly.

Mr. Brydon did not agree with Mr. Rublee's estimate of the transportation companies and quoted some of his experiences, which were not so fortunate in meeting with the prompt transportation attention the case demanded. He had been present at a meeting between the railway company and the fruit growers. Fortunately he had expected no satisfaction and got exactly what he expected. All their protests were shelved, the government officials sitting beside those of the railway company and coinciding with them. Mr. Johnston did not quite agree with this speaker, as he met Mr. Stout, who promised all kinds of facilities; result, no rebates; but the price of \$2.25 per crate was realized for strawberries.

Mr. Rublee was asked how British Columbia fruit contrasted with Ontario and said, in reply, that there was no comparison as to packing, the Ontario fruit being very inferior, and that if Ontario desires to compete with us it must imitate our methods.—W. J. L. H.

Manitoba

T. Albert Scholes, Killarney

With care and proper selection, Manitoba may raise many fruits successfully. In the neighborhood of Killarney, especially in the valleys of Long and Pembina rivers and at Turtle Mountain, wild plums (some of fair size and quality), black currants, saskatoons (which are somewhat like huckleberries), high-bush cranberries, pin-berries, choke cherries and good-sized strawberries grow abundantly and raspberries are plentiful in parts of the Turtle Mountain. One thing to be noticed and worth considering by the would-be grower of fruit is that the slope facing north is where the luxuriant covering of trees, fruit bushes, wild pea vines, hawthorns, hop-vines, hazel-nuts, and so forth, are to be found, while the south slope does not even grow good grass unless in some hollows.

The home-keeper that desires success must, therefore, try to have his fruit bushes and trees sheltered from the hot glare of the morning sun. Let the shelter be either a hill, a building, a south-shelter belt of trees or even a woodpile. It is not the severe frost of our winter that kills, but the night frosts and hot suns of April and early part of May.

Around and in my own garden, I planted seeds of the Manitoba maple and cuttings of willow about 14 years ago, and have since then grown ash trees from seed. The trees now give shelter from the south and east and also from the strong west winds.

I grow with success, without laying them down in the fall, four varieties of red raspberry, the hardiest of which are the Turner and the Herbert, and one yellow raspberry, Golden Queen. The Shafter (purple) and the Hilborn and Cumberland black raspberries need to be bent over a little mound of earth and covered with earth or coarse manure in the fall and left covered until the second week in May. I have not had any success in producing a properly ripened blackberry from Mersereau, Ever-bearing Tree or Rathburn blackberries. Cultivated strawberries do well without other covering than snow and the dead leaves from the surrounding willow and apple trees.

The different varieties of red and white currants and American gooseberries do well with mulching. I have not had good success with black currants.

About 10 years ago, I received from the Ottawa Experimental Farm, some seeds of

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the wild Siberian crab and some small first-year seedlings of cross-bred trees. These have grown well and have proved perfectly hardy, not killing back an inch. Some of the Siberian crabs are very small but they make excellent jelly and the trees are very ornamental in the blossoming season. Among the cross-bred trees the best are Aurora, Charles and Northern Queen, the last named of which bore 12 ripe apples the next year after it was planted—a six-inch seedling—and has borne heavily since. The Transcendant crab does well and bears larger fruit than the cross-bred trees.

My standard apple trees have not yet borne nor my Cheney and Surprise plum trees though the latter have blossomed. The Okabena and Hiberna standard apple trees are, I believe, perfectly hardy and yield good-sized, well-flavored fruit.

On most Manitoba farms, there has been little done in the way of making a shelter belt of trees. Until something in this line is done, money invested in fruit bushes and fruit trees is put where it may not be found.

Where there is a shelter, fruit growing may be engaged in with both profit and pleasure.

After plants are in, good and frequent cultivation will be required to give success. Currant and gooseberry plants will require watching to prevent the worm getting ahead of the owner. The other fruits do not, with the possible exception of the plum, seem to have many enemies in Manitoba.

Prince Edward Island

J. A. Moore

Very little happens here in the fruit growing line. People are not organized and do not meet together to discuss horticultural matters. The institutes have not as yet interested their members in this most profitable industry.

It is quite possible to take \$200 from an acre of orchard on P. E. Island. I know a man who did it last year. What other branch of farm work does this? And why do not more people try it faithfully? The trouble seems to be the want of a market,

and yet we do not begin to grow enough to warrant a buyer coming to us.

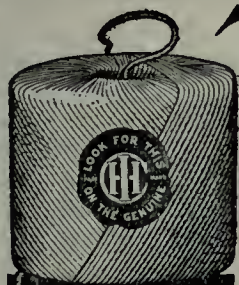
Co-operation in planting is as much needed right now as co-operation in marketing. It is large quantities of one or two varieties in one community that is wanted; and it is not hard for communities to decide on the varieties that suit them best.

Quite a large number of Baxters are to be set out this spring. This is one of the most beautiful looking apples, but it needs to be sprayed, and if our people are going to grow apples for market they must spray. The Baxter is an annual bearer and is very hardy, and with good storage the fruit will keep through till spring.

Annapolis Valley West, N. S.

R. J. Messenger

The returns from the fruit shipping season just over have not been most pleasing. Apples kept at a very moderate to low price for the whole season, and there does not seem to have been any reason why the prices



LET THE EXPERIENCE OF THE MAJORITY OF FARMERS BE YOUR GUIDE IN BUYING TWINE

THE time has come to order your binder twine for the 1910 harvest. Twine dealers are placing orders for their season's stock. The mills are running. Now is the time for you to decide the twine question. It is something that requires careful consideration. The success of your harvest will depend on the uninterrupted work of your binder, for no binder can work well if you use a cheap grade of binder twine.

It is our aim to have every farmer who uses I H C twine go through the 1910 harvest season without a break in the field. We have much more at stake than merely selling twine. Your interests and ours are the same.

We know that the raw materials from which I H C twines are spun have the quantity and quality of fibre that insure greater strength than is found in any other twine. They are evenly spun—smooth running—do not tangle in the twine box—work well in the knotter, insuring perfect binding and perfect tying. They insure your being able to work your binder through the entire harvest season with greatest speed and economy and are therefore practical profit insurance.

Those who buy cheap twine will certainly have trouble—delays due to tangles, knots and breaks will mean the loss of valuable time—and every delay at harvest time will cut down your profits.

There is a sure way to avoid this. Let the experience of the past be your guide in purchasing your twine. The verdict of the majority of the farmers of this country is a safe guide. Their decision should have more weight with you than the statement of any twine manufacturer. These farmers know. They have the same problems confronting them that you have. They have no axe to grind. They do not sell twine. They are only interested in results.

I H C Brand of Sisal—Standard Sisal Manila or Pure Manila

Are the twines used by the majority of the farmers of this country. They have been proved to give the best results. Eighty-five to 90 per cent of the farmers use Sisal. It is smooth running and works at steady tension without kinking or tangling in the twine box—insuring perfect binding and perfect tying. Its only equal is the really high grade Manila twines such as bear the I H C trade-mark.

Your interests and ours are identical on this twine proposition. We have more at stake than selling twine. We are vitally interested in the successful operation of hundreds of thousands of binders. On their successful operation depends our success—and we know they cannot operate successfully with poor twine. No binder made can. For this reason we have given the twine problem careful study. When we say "Stick to Sisal or high grade Manila bearing the I H C trade-mark"—we do so because we know them to be the highest standard of excellence in binder twine.

But we don't ask you to do as we say. We want you to be the judge. But your judgment to be right should be based on facts—not on the statement of any twine man. And the fact is—that the majority of the farmers of this country use I H C twine. Sisal or Standard (which is made from pure Sisal) comes 500 feet to the pound; high grade Manila, 600 feet to the pound; Pure Manila, 650 feet. See your local I H C dealer at once and let him know how much you will need. If you want more facts on binder twine, write the International Harvester Company of America at nearest branch house for information.

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No doubt you will agree that if quality and price are equal every Canadian should buy Canadian made goods in preference to any others.

Not only is it patriotic—it's sound common sense. The money spent for Canadian goods goes to build up Canadian industries and prosperity, and makes it easier for every Canadian to earn a good living.

On the other hand, money spent for foreign made goods goes out of the country to pay foreigners—not to benefit Canadians.

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Toilet and Medicinal Preparations are compounded in Canada from the purest ingredients which money can buy. The National Drug and Chemical Company of Canada returns to Canadians in employees' salaries, dividends and other expense disbursements, close to One Million Dollars a year. In addition to this we spend millions every year in Canada for raw materials, tins, bottles, labels, boxes and other supplies, giving employment to hundreds of Canadian tinsmiths, glass workers, paper makers, printers, lithographers, box makers, and others.

So even if NA-DRU-CO goods were only "just as good" as those imported from other countries, you would be following a sensible and patriotic course in buying them.

As a matter of fact, though, NA-DRU-CO Toilet and Medicinal Preparations are better than those imported. Try NA-DRU-CO Talcum Powder, NA-DRU-CO Greaseless Toilet Cream, NA-DRU-CO Tasteless Cod Liver Oil Compound or any other NA-DRU-CO preparation, and see for yourself.

You risk nothing in making the test, for if the NA-DRU-CO article does not entirely satisfy you, return it and your druggist will refund your money.

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12

Of last season should not have been repeated. Whether the fault lies with the methods on this side of the water or the other is hard to tell. It certainly seems as if we were being handled to make the apple speculators and English brokers wealthy. Prices for hard fruit have kept under \$2 net except in the case of Spys and Golden Russets.

The spraying season with its new methods, mixtures and perplexities is at hand again. It would almost seem as if the old reliable Bordeaux were losing its popularity and lime-sulphur were to take its place. Of this mixture, public opinion seems to be divided as to the greater efficiency of the home-boiled or the commercially prepared. Two brands of the latter are on the market, and we hope that the prepared may prove as efficient at least as the home-boiled, for the trouble and discomfort of making the latter is certainly against its use.

The horticultural experiment station has at last been purchased, the choice being a farm about one-half mile from Kentville. The difficulty now seems to be to get a director. Qualified horticulturists seem to be scarce.

Good Ontario Apples

THE CANADIAN HORTICULTURIST recently received the following interesting letter from a British Columbia subscriber, evidently once a resident of Ontario:

"The article on page 73, March issue, 'Ontario vs. British Columbia,' has ruffled me up sufficiently to make me write a few lines to you. I hope you can find room and that they will do good. We never see anything about Ontario fruit in our local British Columbia papers, but in the same strain; same with the prairie papers; and though I read Ontario papers whenever I can, am forced to say, almost same with Ontario papers. Can the fruit grower be clubbed into careful methods? Why not tell him how some up-to-date Ontario grower (and there are a few of them) has raised his percentage of No. 1 apples by spraying, has sold at top price on account of good grading and packing and how much more a consignment of boxed apples netted than an equal bulk of barrelled apples? Some of these co-operative fruit shippers associations, of which I understand there are now a lot in Ontario, must be marketing their output at figures which would look well in print.

"Your growers there should get more optimistic about those toothsome Ontario apples and their possibilities; also they should get the box idea for their choice fruit as soon as they can; there is money in it. I think I noticed a firm in Burlington advertising boxed apples sent to Great Britain; if requested, money refunded if unsatisfactory. A few more such enterprising concerns would put Ontario's apple reputation in the ascendancy."

The Kaslo District (B. C.) Horticultural and Fruit Growers' Association will hold a Kootenay Lake Apple Show during the third week of October, 1910. Prizes will be awarded for plates, single boxes, three-box exhibits and five-box exhibits. The secretary of the show is Mr. W. Johnson, Kaslo, B. C.

The Manitoba Horticultural and Forestry Association is planning for a banner year. Excellent premiums are offered to members. All persons in the west who are interested in the culture of fruits, vegetables, flowers, ornamentals or in forestry, should join this association. Communicate with the secretary, Prof. F. W. Brodrick, Manitoba Agricultural College, Winnipeg.

Annapolis Valley East, N. S.

Eunice Watts, A. R. H. S.

In Nova Scotia, the brown-tail moth seems to be gaining headway; from Digby and Annapolis come reports of infested orchards; on one tree 83 nests were found, containing about three hundred insects each. At Port Williams and Welsford other nests have been found, but the department of agriculture is taking active steps to suppress the moth, and wish to have all cases reported to them. Doctor Gordon Hewitt, Dominion Entomologist, is assisting in the provinces' campaign against the pest.

The call for fruit trees is greater than ever, and the local supply is not equal to the demand; consequently, large quantities of nursery stock are being imported. Orchards are being extended with amazing rapidity. Nova Scotian missionaries are preaching fruit growing and agriculture on the other side of the Atlantic, and the result is that well-to-do immigrants are buying good farms in the valley.

So far, spring has been exceptionally early and peas were planted in the middle of March, while potatoes went in at the beginning of April.

Work on the new railway through the northern part of the Annapolis Valley has begun and the value of farms in Kings County will naturally increase.

Arrangements have been made for the Hants, Kings, and Annapolis Exhibition to take place at Windsor on October 5, 6 and 7, 1910.

Under the auspices of the King's County Farmers' Association, Mr. W. H. Woodworth, assisted by Mr. McRae of Ottawa, have been touring the country in the interests of better agriculture. Mr. Woodworth usually spoke upon fruit growing, general orcharding and commercial fertilizers. At Berwick the afternoon and evening meetings were well attended. At the latter meeting the Berwick Brass Band kindly furnished music, and Miss Eunice Watts gave an address on "Dwarf Fruit Trees." Mr. McRae, who has travelled extensively, said that Nova Scotians did not appreciate their own country enough and that they got their living too easily; and, comparing the fruit farms of the Annapolis Valley with those celebrated fruit regions in the west, he could not see where the westerner had any advantage over the Nova Scotian. If the real estate men would write up our province as they did these of the west, we would not know our own farms.

Montreal

E. H. Wartman, Dominion Fruit Inspector

While attending orchard meetings in the county of Huntingdon, Que., for one week last month, many things struck me while driving from one township to another as being of great importance. First, to know to what extent maple sugar and syrup are made. One said he made 700 gallons in one season. It is quite a common thing for one person to tap from 2000 to 3000 trees. These trees are of the largest and healthiest type. One firm had his posters all over the country wanting to buy 60,000 gallons of pure maple syrup. I think it was available at around 80 cents a gallon.

Apple orchards you would see planted among the rocks and at a glance you would think it all rock. One would wonder where the trees could get rooted. Some have thrown wagon loads of earth among the rocks so as to be able to plant their trees which have done well, bearing heavy crops. One farm, I am told, has seven miles of stone fence. I saw several miles from the main road. Wherever soil is found between these rocks it is of good quality and pro-

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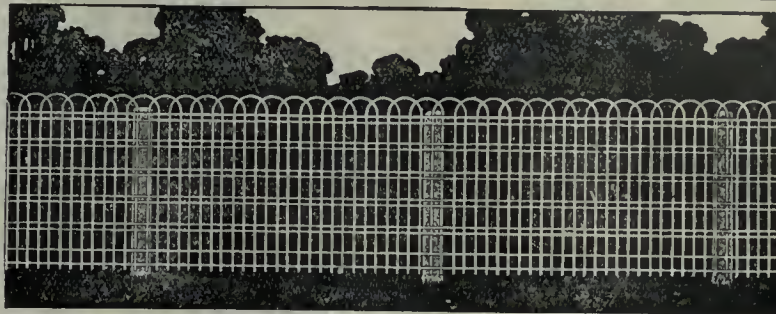
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The cost of oil and gasoline to operate an I H C Buggy is less than the cost of keeping one horse. It can be used when you would not dare to take a horse out and it never gets tired.

With an I H C Auto Buggy you can travel from one to twenty miles an hour over hills, through mud, snow—over any roads.

When you buy, get the car that has proved to be most—

Practical—Economical—Serviceable—

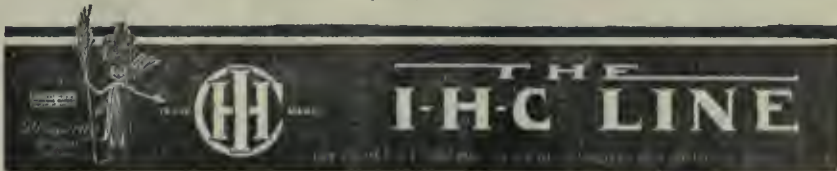
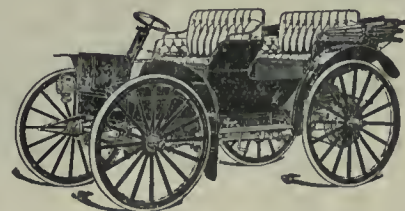
The one with the High Wheels and Solid Tires. You will find it the easiest riding and you will never have "tire troubles." A large wheel rolls over a bump or rut. A small wheel jumps over it. With solid tires you will never be delayed by punctures or blow-outs and you will save many dollars through not having to repair and replace worn-out tires. Solid tires are easiest on the roads. They do not flatten out and loosen dirt and gravel like inflated tires do.

There are many other advantages of the I H C Buggies that you ought to know about. They have full elliptic springs (36 in. long by 1½ in. wide) and a long base, insuring easy-riding qualities. The International Auto-Wagon has the same features of construction as the Auto Buggy and is a thoroughly reliable car for light delivery wagon purposes.

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INTERNATIONAL HARVESTER COMPANY OF AMERICA CHICAGO U S A
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duces heavy crops of potatoes, which sell at 18 cents a bag of 80 pounds.

I stopped at the home of Mr. Parkham,

Cherry Lodge. His orchard is about 50 acres in extent, with many varieties, which are mostly Faineuse type. This would be a

grand sight in picking time, as all the trees are of a healthy kind that would produce the best fruit. One old veteran tree near the house has been traced back over 100 years, and it is a remarkable tree in many ways. Generally trees of this age are delimbed and poorly balanced at the tops, but the top of this tree is a beautiful shape. It has a capacity of 10 barrels, which are said to look like the Spy apple. They are good keepers. Its girth one foot above ground is over eight feet. Cherry trees, pear trees and plum trees are of the healthiest kinds. People in this section are beginning to find out that the fruit crop is worthy of their best attention. I am looking for great things in apple production in this county during the next 10 years.

Winnipeg

Geo Batho

It is a little hard to know where we are at horticulturally just at the moment of writing. Up till three days ago we had an exceptionally fine spring, and on April 13 the maples and elms had nicely come into flower, just a little better than a month ahead of what they were a year ago. Trees and shrubs generally were rapidly opening their leaf buds. But alas for our too sanguine expectations! The mercury has gone down to 16 above zero this morning (April 16), and we are having a disagreeable snow storm. It is quite likely that the seed crop will be lost on the more advanced of the forest trees, but it seems hardly likely that the fruit crop would be killed. If the buds are not already far enough along to receive damage, the setback will be of much benefit, as it will reduce the chances of destruction a little later on.

The Western Horticultural Society has been successful in getting through legislation changing its name to the Manitoba Horticultural and Forestry Association. In keeping with the latter part of its name, the Association has within the past two weeks had given under its auspices an illustrated lecture on the forests of Canada by Mr. Abram Knechtel of the Forestry Branch, Ottawa. Mr. Knechtel has been on a lecturing tour through the west. His colored lantern slides are exceedingly good.

The newly organized Winnipeg Horticultural Society is holding some good meetings, and promises to do much good in the city.

Renew your subscription now.

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Write for quick sale prices.

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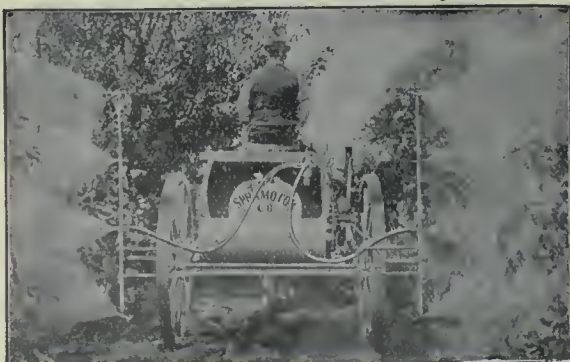
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If stand pipe hits a post it folds back behind rig and rights itself, each side independently. Has auto. control for height, width and direction of nozzles. 12-gallon air chamber, nozzle protector.

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BEST HAND-SPRAYER MADE AT THE PRICE
READ THE FOLLOWING:

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"The Sprayer that I purchased from you last spring is a most valuable little machine. I have no hesitation in recommending it to anyone who requires an inexpensive and reliable spray pump. It is excellent, and I do not know of any other hand machine for the price that could do better work."

E. D. Smith, Ex-M.P.,

President Ont. Fruit Growers' Ass'n.

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CAVERS BROS., Manufacturers, Galt, Ont.

Summer Spraying For Peaches

Prof. John P. Stewart, State College, Pa.

For brown-rot, scab and curculio:

(1) When the calyces (or shucks) are shedding, lead arsenate, lime and water (2 2-40).

(2) About one month after petals drop. Use either (a) lead arsenate and self-boiled lime-sulphur, 2-8-8-40. Or (b) lime-sulphur solution, about 1.003, and arsenate of lime at the rate of about 1 pint to 40 gallons. (See Pa. Expt. Sta. Bul. 92 or 99 for preparation and dilution of materials in (b). Lead arsenate and lime, two pounds of each, may be substituted for the arsenite of lime, making the addition of the arsenical as late as possible).

(3) About one month before fruit ripens. Either (a) self-boiled lime-sulphur, 8-8-40; or (b) lime-sulphur solution, about 1.003.

Note.—Treatments 2b and 3b are experimental as yet, but are promising and desirable for their economy, convenience and freedom from stain on the fruit. 3b, for example, may prove to be usable up to two weeks before fruit-ripening. The solutions should be known to be free from salt or other harmful foreign materials. The main spraying should be done as indicated in 2a and 3a, with accompanying tests of the alternative treatment under similar conditions, for possible future use.

References.—For making self-boiled lime-sulphur, see Bulletin 174 or Circular 27 of the Bureau of Plant Industry, Washington, D. C. For making and diluting concentrated lime-sulphur, see Penn. Expt. Sta. Bul. 92 or 99.

The Best Seed Values.—Graham Bros., seedsmen, of Ottawa, are offering some splendid values in their 1910 spring catalogue. Among their special collections noted is a 50c collection of choice varieties of the standard flower seeds, worth ordinarily 90c. This collection alone will enable you to have a fine garden this year. Another special collection is 15 varieties of choice sweet peas for \$1.00. Graham Bros. also handle "Central Farm Lawn Grass," which is especially suitable for the Canadian climate.



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The real Canadian girl, and her mother and grandmother too, know that Windsor Salt is unequalled for purity, flavor and brilliant, sparkling appearance.

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13

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Man-Power Potato & Orchard Sprayer.
Sprays "anything"—potatoes or truck, 4 rows at a time. Also first-class tree sprayer. Vapor spray prevents blight, bugs, scab and rot from cutting your crop in half. High pressure from big wheel. Pushes easy. Spray arms adjust to any width or height of row. Cheap in price, light, strong and durable. **GUARANTEED FOR 5 FULL YEARS.** Needn't send a cent to get it "on trial." You can get one free if you are first in your locality. Write now.



Horse-Power Potato & Orchard Sprayer.
For big growers. Most powerful machine made. 60 to 100 gallon tank for one or two horses. Steel axle. One-piece-heavy-angle-iron frame, cypress wood tank with adjustable round iron hoops. Metal wheels. "Adjustable" spray arms and nozzles. Brass ball-valves, plunger, strainer, etc. Big pump gives vapor spray. **Warranted for 5 years.** Try this machine at our expense with "your money in your pocket." See free offer below. Write today.



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Advertisements under this heading inserted at rate of two cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

10,000 FIRST-CLASS 2 year old Asparagus Roots for sale, at One Dollar per hundred.—Wm. Jones, Baltimore, Ont.

AGENTS OR SALESMEN WANTED for the best selling article on the market for farmers or fruit growers; big profits.—The Collins Mfg. Co., Toronto.

PIPE FOR SALE.—All sizes for steam, hot water heating, posts, green house construction work, etc., very cheap. Send for price list, stating your needs.—Imperial Waste and Metal Co., 7 Queen Street, Montreal.

FRUIT LANDS

FRUIT FARM WANTED for rent. Might purchase later.—Box S. Canadian Horticulturist.

FRUIT FARMS sold and exchanged. List with us for quick sale. See us if you are thinking of buying a fruit farm.—F. J. Watson & Co., 1275 Queen Street W., Toronto, Ont.

OKANAGAN FRUIT LANDS grow prize-winning fruits, commanding top prices. Ten acres irrigated land assure independence and delightful home. Low prices; easy terms. Illustrated booklet.—Panton & Emsley, Vancouver, British Columbia.

FORT GEORGE, BRITISH COLUMBIA, Grand Trunk Pacific Railway terminal. Centre richest farming area. Banks, business establishments, already purchasers—lots \$150 up; 1/2 cash. Farm lands also.—Northern Development Co., Vancouver, B. C.

BRITISH COLUMBIA FARM LANDS.—80,000 acres on Grand Trunk Pacific Railway. Fort George District—retail or en bloc. Rich soil, ideal climate, easy terms.—The Mercantile Trust Co., Ltd., Vancouver, B. C.

BRITISH COLUMBIA—Fort George lands—50,000 acres fertile wheat and mixed farming lands. Send for photographs and surveyors' reports.—The Wright Investment Co., Dominion Trust Building, Vancouver, B. C., Canada.

IF YOU WANT to buy a good fruit farm, read the advertisements in this column. If you have a fruit farm you wish to sell, tell our readers about it in The Canadian Horticulturist.

SALMON ARM, Shuswap Lake, B. C., has the finest fruit and dairy land in B. C. No irrigation necessary, mild winters, moderate summers; no blizzards, or high winds; delightful climate; enormous yields of fruit, vegetables and hay; good fishing; fine boating amidst the most beautiful scenery, and the Salmon Arm fruit has realized 25 cents per box more than other fruit in B. C. Prices of land moderate, and terms to suit. Apply to F. C. Haydock, Salmon Arm, B. C.

GROW APPLES AND GROW RICH — 10 acres in British Columbia's finest fruit growing district will support a family in comfort. Prize fruit, enormous crops, high prices, big profits—\$200 to \$500 per acre. Established settlement, no isolation, plenty good neighbors, best transportation, good markets, grand scenery, hunting, fishing, shooting; school, church, stores, post office, hotel; daily trains. Splendid climate; fine summers, mild winters; high winds and low temperatures unknown. Prices right. Easy terms. Proofs, plans, particulars.—Fruitvale Limited, Land Dept., Nelson, B. C.

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WE MANUFACTURE
STANDARD POTS
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STRAIGHT PANS

Canada's Leading Pot
Manufacturers

The FOSTER POTTERY CO., Limited

Main St. West, Hamilton, Ont.

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COMING EVENTS

Under this heading, notices of forthcoming exhibitions and meetings of horticultural importance will be published. Send the information as long in advance as possible.

Calgary, Alberta Provincial..June 30-July 7
Charlottetown, P. E. I. Provincial.....Sept. 20-24.
Halifax, N. S., Provincial...Sept. 28-Oct. 6.
London, Eng., Royal Horticultural Show
(for colonial-grown fruit and vegetables)
.....Dec. 1-3.
London, Ont., Western Fair....Sept. 9-17.
Now Westminster, B. C., Provincial.....Oct. 4-8.
Ottawa, Central Canada.....Sept. 9-17
Regina, Sask., Provincial.....Aug. 2-5.
Sherbrooke, Quebec Pomological Society
(Summer Meeting)Aug. 30-Sept. 1.
Sherbrooke, Que., Great Eastern.....Aug. 27-Sept. 3.
St. John, N. B., Dominion Exhibition....Sept. 5-15.
Toronto, Canadian National.....Aug. 27-Sept. 12.
Toronto, Ontario Horticultural..Nov. 15-19.
VancouverAug. 15-20.
Victoria, B. C.Sept. 27-Oct. 1.
Winnipeg, IndustrialJuly 13-23.

The American Civic Association will hold its second annual conference on city planning at Rochester, N. Y., on May 2 to 4. An excellent program has been arranged.

Get some of your spring seeds and plants free of cost. See THE CANADIAN HORTICULTURIST Premium Collections on another page of this issue. The offer is open only until May 15.

Early last month Mr. E. D. Smith, ex-M.P., Winona, Ont., appeared before the board of railway commissioners at Ottawa and discussed express rates on fruits to Winnipeg and the maritime provinces. He asked for lower rates on fruit to Montreal to encourage the export trade. Mr. Smith was convinced that a profitable trade in peaches could be worked up with the English firms if lower rates to Montreal were obtainable.

Potato Culture.—An interesting and valuable work on "Potato Culture" is issued by the Aspinwall Mfg. Co. It includes articles on the preparation of the soil, selection of seed, how deep to plant, distance apart to plant, harvesting the crop, profits per acre. A free copy of this book may be secured by writing to the above company at Guelph, Ont., or at Jackson, Mich., and mentioning this paper. If you request it, they will also mail you a copy of their latest catalog.

Spraying outfits that have caused considerable favorable comment among practical farmers and fruit growers are the I. H. C.

Famous line. Besides their wonderfully efficient spraying qualities, the engine can easily be detached and used for regular farm work. This feature alone has induced thousands of farmers to decide on an I. H. C. spraying outfit. Ask the local International agent about the I. H. C. Famous line of spraying outfits, or drop a line direct to the International Harvester Company of America, Chicago, U. S. A., for catalog and any definite information you desire.

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Apple, Pear, Plum, Cherry, Peach, Grapes, Small Fruits, Deciduous and Evergreen Ornamentals, Roses, Flowering Shrubs, Climbers, etc. Specialties: Mammoth Dewberry and Wismer's Dessert Apple. Catalogue Free; it tells the whole story.

J. H. WISMER, Nurseryman. Port Elgin, Ontario

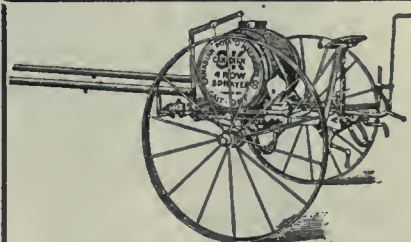
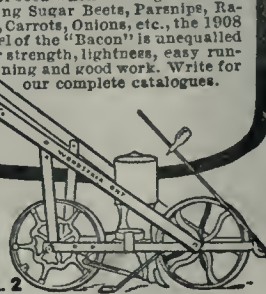
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Sixty-four page illustrated Catalogue showing the scores of styles and sizes, free at the dealers, or by mail.
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'The "BACON" Seed Drills and Cultivators

The only Rear-Wheel Driven Seed Drill on the market. The feed in the "Bacon" handles seed without bruising or breaking, and seeds evenly to the last seed. Machine instantly converted from a regular seed sower into a hill dropper. Feed Cut prevents waste of seed when turning rows.

For sowing Sugar Beets, Parsnips, Radishes, Carrots, Onions, etc., the 1908 model of the "Bacon" is unequalled for strength, lightness, easy running and good work. Write for our complete catalogues.

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O.K. Canadian 4 Row Sprayer

Sprays 4 rows while you drive, no hand pumping to do. Wheels and nozzles adjustable for wide and narrow rows. Can be adjusted to spray vines 6 inches to 2 1/2 feet high. Can be furnished with Broad Cast vineyard and tree spraying attachments

Write for particulars.

Canadian Potato Machinery Co., Ltd., GALT, ONT.

124 STONE ROAD

The Canadian Horticulturist

Vol. XXXIII

JUNE, 1910

No. 6

The Control of Moisture in Orchard Soils

F. T. Shutt, M.A., Chemist, Dominion Experimental Farms

I SHALL briefly state some of the more important conclusions from researches that have been made at Ottawa. For the figures and details, consult the publications of the Dominion Experimental Farms.

1. The growth of rye, oats and buckwheat as cover crops in the orchard has always resulted in the removal of larger amount of soil moisture than those lost by the growth of one of the legumes—clover, hairy vetch, soya beans, etc. The draft made by the cereals upon the stores of soil moisture is greatest between May 1st and July 15th—a period when it is most required for the use of the orchard trees. We have found that the equivalent of approximately ten inches of rain may be lost in this period from soil carrying a grain crop, over and above that lost from a cultivated soil.

It seems more than probable that the smaller amount of water lost from the soil carrying the cover crop—clover, vetch, etc.,—as compared with that carrying a grain crop may be in part accounted for by the more perfect shade from the sun and protection from wind afforded by the former crops.

2. More moisture may be conserved by sowing the cover crops—hairy vetch, soya beans, horse beans—in drills and cultivation between the rows from time to time throughout the summer, than by sowing these crops broadcast. In other words, the earth mulch is more effective than the shade offered by the crop in conserving moisture. This method of growing cover crops seems to offer a means of furnishing material for enrichment of the soil without making any excessive demand on the soil moisture supply—and hence may prove valuable for adoption in districts that are subject to drought in the late summer. It is quite possible for a soil to become so dry in the autumn months that the fruit ripens prematurely. On such soils, of course, the ordinary cover crop, sown in July, may do more harm than good.

3. There appears to be little difference between the moisture content of soils constantly cultivated throughout the summer

and that of soil under a thick mulch of straw. Ten to twelve inches of straw seems to be very effective in conserving moisture, but the objections that may be urged to such a method are cost of material, application and removal—for the latter would be necessary if there were danger of the trees continuing their growth into the late autumn—and the probability that the straw mulch would cause a surface-development of the root system, resulting in injury to the trees from winter killing.

4. Undisturbed fallow land readily dries out, and further, may be taken possession of by weeds which serve to increase the loss of moisture. We have instances in which such land has been found

Leads Them All

THE CANADIAN HORTICULTURIST gives me more pleasure for the outlay than any other paper or magazine of the \$40.00 worth that I get each year. My garden last season was more productive than ever, and all through the pointers gleaned from THE CANADIAN HORTICULTURIST.—J. E. Klotz, M. D., Lanark, Ont.

to dry out to the same extent as land in sod.

The desirability of immediate cultivation after plowing an orchard has been shown, if soil moisture is to be conserved. A period of three or four days with the upturned soil as left by the plow may very seriously diminish the soil's store of water.

6. Rape has proven an excellent cover crop for drying out the soil in the late summer and autumn months. In this respect it is fully the equal of the legumes usually sown for this purpose.

In conclusion, we may emphasize the essential points we have endeavored to bring out: First, very great value of cultivation for conserving soil moisture and the desirability of employing in many districts this means during the first three months of the growing season, to supply our orchards with the water necessary for the full development of their fruit. Secondly, we have proved the extremely exhaustive effect on soil moisture of sod and of grain crops. Their injurious in-

fluence on the growth of the tree—especially the young tree—and the development of fruit, so often to be observed on dry soils, is fully accounted for by the results of our investigation. And, lastly, that legumes and rape are suitable crops in most districts to sow in mid-summer when the drying out of the soil is considered desirable to hasten the ripening of the wood before winter sets in.

Box Package for Export Apples

J. A. Webster, Sparta, Ont.

Packing in boxes has appealed to me as the best way to market Lake Erie apples; therefore, I have only used boxes for the past three years and am satisfied that boxes in this district will pay better than barrels.

Success with boxes depends upon good fruit, well graded and packed. The whole secret lies in painstaking care in growing, handling, grading, packing and then marketing, so that the fruit shall reach the consumer without a bruise.

To dispose of undergrade fruit, I have put up a small evaporating and canning plant at my orchard. This I consider the best outlet for fruit not good enough to box and it enables me to put up a fancy pack of manufactured, as well as green, fruit with my carefully handled crop, and besides dried and canned fruit will bring better returns than the usual No. 2 barrel.

I would advise papering every apple tiered in the box for export. What is not worth papering is not worth exporting. The cost of the box and paper used is slightly more than one-third of the cost of a barrel and the returns are better. However, the labor in connection with boxing is much more than in barrelling.

I have shipped apples to the British market and have personally seen them sold and would advise others to put a new brand of boxed apples on the market there by a private sale broker. Last year I called on a number of fruit brokers in Great Britain and I selected a firm to handle my crop. It is worth something to see your broker and have a chat with him about the business. I know that there are some brokers not as reliable as others. It will pay an exporter to see his apples put on the market there and to keep his eyes open from the time the ship reaches port until the fruit is retailed.

*Important conclusions from researches made by Mr. Shutt and told by him in an address before the American Pomological Society of St. Catharines, Ont., last fall. Readers that desire more complete details may obtain same by referring to the publications of the Dominion Experimental Farms, or by writing direct to Mr. Shutt, Ottawa.

Good fruit brings a high figure at retail in the Old Country markets. I have seen apples on show for sale at retail at a guinea a box and at one franc each.

We need at St. Thomas a pre-cooling and shipping depot for our fruit. With such a warehouse, the value of our whole crop would be increased but especially our early apples. If we could pick our fruit in season and take it to such a depot immediately, where it could be properly cooled, packed and shipped, we could save an immense waste in our crop.

Success with Strawberries

One of the most successful growers of strawberries in Canada, is Mr. James E. Johnson, of Simcoe, Ont., and his methods as described by him at the short course in fruit growing held in Guelph last winter, were listened to with great eagerness.

Last year Mr. Johnson harvested from ten acres about 84,000 baskets of berries. This he considered to be a small crop, claiming that about 10,000 baskets an acre is a good average crop.

The main requisite to success is a thorough knowledge of the business and of the habits of the plant. A wide knowledge of the methods in use by the best growers is of the greatest aid to the beginner. Mr. Johnson's plantation is partly on sand and partly on clay.

Plant only the best plants to be had, was Mr. Johnson's advice. Do not take plants from the outside of the row. Dig the whole row and reject all small plants.

The rows are made forty-two inches apart, with plants set three feet apart in the row. Thus horse-cultivation can be kept up both ways for a considerable length of time. The ground is marked both ways by means of markers. The plants are set at the intersection of the marks. Cultivation is kept up once or twice a week regularly for the first season.

In growing the matted row, which is the method followed, it is necessary to place them by hand in their proper place. The plants are not allowed to develop fresh runners as all the strength of the young plant is needed in order to establish it. When the placing of the runners commences, cultivation one way ceases.

Mulching in winter is always practised with straw or very coarse manure. Last year the wind blew the straw off and the result was a diminished crop.

Two crops are harvested from each patch. To renew the patch is perhaps one of the greatest problems. Just after harvest has ended the mower is run over the plantation; then the mulch is stirred up with a hay-tedder and fire run over the patch. The ground between the rows is then plowed in such a way as to narrow the rows to about a foot in width. The cultivator and hoe is set to work and the patch made thoroughly clean.

Spraying for the rust is considered by Mr. Johnson to be one of the best means of securing a heavy crop. Heavy applications of spray are made once or twice just before bloom. Thoroughness in this is necessary. Bordeaux mixture is used according to the following formula: Blue stone, six pounds; lime, ten pounds; water, fifty gallons. The spray is applied by a traction spray cart with a set of six nozzles attached, such as is used for potatoes.—D. S.

Marketing Strawberries

J. C. Gilman, Fredericton, N.B.

Boxes and crates for strawberries should be procured early in the season, with extra slats, so that you will not have to stop in a hurried time to hunt up laths and shingles before you can pack your berries, and keep the grocer and custom-



Some New Brunswick Grown Strawberries

Glen Marys last year on farm of Mr. J. C. Gilman, near Fredericton.

ers waiting while makeshifts are brought into use.

Different growers have different methods at picking time; most, however, use what is called a stand, a field basket or picker's basket, which in most cases is simply a shallow box with four legs, three or four inches long, and a handle made out of a barrel hoop, or anything suitable for that purpose. These picker's stands are made just large enough to hold six boxes.

Keeping tally of the pick must be provided for. After trying several ways, each of which had objections, we have found nothing better than a picker's ticket with four rows of figures totalling 100; the top row has ten sixes, the second row ten twos, while each of the other two rows have ten of the figure 1. Write the picker's name on each ticket given out. This will often prevent difficulty arising when tickets are lost and found. A

punch similar to a conductor's punch should be used to punch out the figures to tally with the number of full boxes brought in by each picker.

Have a corn whisk for your pickers to remove the factory dust from the boxes before using. Give beginners a few simple directions. Explain the difference between picking and pulling. Show them that by picking a berry it may be placed in a box without harm, while by pulling the ripe berries are bruised, stems are broken and green berries are wasted.

Pass among your pickers and see that your instructions are being carried out. Some new hands will be apt to damage the fruit at first, but by patiently showing them you may soon find them quite expert. A convenient shelter should be provided, to which the berries may be taken, and packed for market.

The chief methods of disposing of the crop are shipping to some distant point, to be sold on commission, supplying local trade by selling to the grocers and private customers, and sending to the canning factory, the last method for disposing of any surplus. Whichever plan we follow, we should aim to be prompt, to deliver our fruit free from the dust of the street, and in the best possible condition.

Cultivating Raspberries

Charles F. Sprout, Burnaby Lake, B. C.

For cultivating raspberries I find the Planet Jr. cultivator a most useful tool. After the patch has been cleaned up and the land more or less hard from the walking up and down of the pickers, a reversible single horse extension disc harrow is an exceedingly useful tool to get the land in condition for the next year's crop. Care must be taken that neither the disc nor the wheel hoe is allowed to go deep into the soil to cut the roots of the plants. It is not safe to cultivate much deeper than two inches or the cultivator will cut or damage the roots.

The raspberry crop wants a rich soil, and takes more potash than strawberries or potatoes. If profitable returns are required the soil must have sufficient of the three main elements of plant food to make a strong growth of new wood and also a big crop of berries.

There are several large fruit tracts to open up in the Okanagan valley, British Columbia. Areas still unimproved mostly require extensive reservoirs back at headwaters or long flumes or pipe lines to get water on to the land. There is an ample snowfall in the mountains, but the big rush of water is over by July 1. With wise conservation the irrigation supply may be increased for many years.

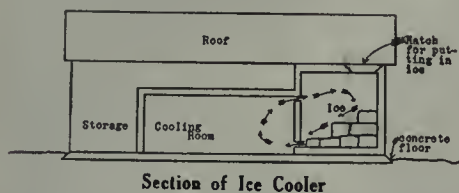
A cool moist soil is best adapted to the growth of currants. It should tend towards clay rather than sand.

Ice Storage on Fruit Farms*

J. A. Ruddick, Dairy and Cold Storage Commissioner, Ottawa

I BELIEVE that a small room where berries and tender fruits could be cooled, held over Sunday, etc., would be a very useful adjunct to many fruit farms. I would not advocate a low temperature for such rooms, possibly not lower than fifty degrees, because of the damage that would result from "sweating" when the fruit was removed for shipping if lower temperatures were employed. At a temperature of fifty, it would be practicable to have a cement concrete floor and to get some cooling from that source, which is a great advantage.

The walls should have one course of matched lumber and siding on the out-



side, with damp-proof paper between, and double boarding and paper on the inside, with a space of twelve inches between the inside and outside sheathing to be filled with shavings. About one-third of the building should be set aside for the ice chamber with a partition between the ice chamber and cooling room with same insulation as for the outside walls. An additional course of matched lumber on the inside, making a one-inch air space, is advisable for the ice chamber. The air space in this case is to prevent moisture from the ice penetrating the insulation.

The floor of the ice chamber should be constructed in the same manner as the floor in the basement of the cold storage. (See last issue of THE CANADIAN HORTICULTURIST), with a slope of one inch in four feet to a gutter at one side to provide drainage from the melting ice. The drainage outlet must be trapped to prevent the passage of air. The floor of the ice chamber should be covered with a wooden grating on which the ice will rest. No covering or packing material is used on or around the ice in such a chamber. Provision is made by means of openings in the partition between the ice chamber and the cooling room, at the ceiling and near the floor, for the circulation of air through the cooling room and over the ice. As the air is chilled, it deposits some of its moisture on the surface of the ice, thus making a fairly dry cold storage. Neither the ice chamber nor the cooling room should be ventilated. The air is changed sufficiently by the occasional opening of the door. Ventilation

means the introduction of warm moisture-laden air, which causes dampness. The circulation over the ice tends to keep the air purified.

It is permissible to have small windows in the cooling room, but they should be located at the ceiling, and have at least double sash, each double glazed. There should be an ante room which can be used for storing empties, tools, etc.

Fruit growers will be able to determine individually whether one of these cooling rooms would be of use to them or not.

Mistaken Ideas in Fruit Growing

B. H. Lee, Berwick, N.S.

Last season was very warm and fruit for some reason did not keep or ship well. Many lots of choice apples left here and arrived in England in very poor condition. This is not an unusual thing in ordinary years, but last season there were very few reports of apples arriving in good condition. There were some lots, however, which did arrive in good condition and brought most excellent prices. This was especially noticeable in the case of one of our Kings County growers, and has led a great many of his neighbors to the conclusion that they are making a mistake in not adopting his methods, which are not generally considered orthodox among fruit growers.

His methods, briefly, are: Keeping the orchard partly in sod; leaving a strip ten or twelve feet wide in sod at the trees, and cultivating and fertilizing the re-

mainder; very little or no pruning; picking the fruit as soon as the seeds commence to turn black; and storing in a cool place. As a result he gets a medium sized but very much firmer apple which carries well and has for a number of years brought the highest prices and last season netted him more money per barrel than any company or individual shipper.

We are growing what has always been considered by us a much better fruit, as we have been educated to believe that the large apple (colored well, if possible) is what we need. Money is what talks in this business and this man's success seems to proclaim with no uncertain sound that we are making the mistake of catering to the English market with an overgrown apple that will not stand the knocks it is bound to get in transit. In such a season as last, it is sure to carry bad. On the other hand, we will make no mistake if we put such fruit upon our local markets, which demand the kind of apple we are growing.

The varieties intended for foreign shipments should be planted in blocks, so that they may be given the treatment required. Pruning and thinning, under these conditions and with some varieties, may not be such important factors as some would lead us to believe.

We are making a mistake in not getting after the younger trees and heading them in so as to more easily spray, prune and pick. Many farmers are still clipping off all fruit spurs near the trunk and compelling the fruit to develop at the top of the tree and at the tips of the branches.



Cultivating the Apple Orchard in Ontario in the Spring
On farm of Mr. F. C. Hoar, Bowmanville, Ont.

*Part of a paper read at the last convention of the Ontario Fruit Growers' Association. Mechanical refrigeration was dealt with in the May issue.

Cherries on the British Columbia Coast

W. J. L. Hamilton, South Salt Spring

IN the island district of British Columbia, cherry growing is likely to prove a profitable industry, as the climate is suitable, the crops heavy and the prices good. Cherries can be divided roughly into two classes, the sweet and the sour.

The sweet cherry is the descendant from the European *Prunus Avium*, and is characterized by white birch-like bark, erect growth, large leaves and flowers opening in clusters, whilst the tree is green. It is, on the coast, much subject to the cherry aphid, the cherry slug (saw-fly) and also to gummosis.

The sour cherry, derived from the European *Prunus Cerasus*, is low growing and spreading, has small leaves, and the flowers open before these develop. It is little subject to diseases or pests, and is altogether the more satisfactory to grow.

The cherry aphid, a pest of the sweet cherry, and very closely allied to the peach aphid, is black in color, and generally appears on the leaves in May or early June. It causes the leaves to curl up and eventually die, and, naturally, the curling of the leaves makes it very difficult to kill by spraying, as it is almost impossible for the spray to reach the insects safely protected by the incurving leaves. Fortunately the larvæ of the lace-wing fly, of the syrphus fly, of the various lady birds, and some small parasites, all feed on these pests, and are often numerous enough to practically clean the tree.

In winter, these aphids are found on the tree roots, where they are, sometimes at any rate, carried by the ants, who regard these insects as their milk cows, since they secrete honey dew, and, like provident husbandmen, the ants remove their cattle to winter quarters.

The cherry tree slugs, the larvæ of the cherry saw-fly, can be killed by summer strength lime-sulphur solution, or by an arsenical spray, whilst the gummosis, caused by the rapid expansion of the cambium, due to sudden sap flow, and consequent exudations, owing to the lack of elasticity of the outer bark, can best be overcome by making a longitudinal cut, with a sharp knife, down the stem and main branches, taking care to cut only through the outer bark, thereby releasing the bonds of the inner layers, and keeping the sap in its proper channels.

As, however, the sour cherry is free from these troubles, and as it brings as good a price, these are mostly grown, and prove very profitable. I have a sour cherry seedling which ripens in September, is of large size, prolific, and brings twelve and one-half cents a pound. Besides this, the Early Richmond for early

use, the Morello and Olivet are good value.

Other profitable cherries are Ostheim, Bing, and, for shorter distances, Royal Ann, but these being sweet cherries, need more care.

Sour cherries may be set twenty feet apart, and sweet ones twenty-five to thirty feet. They are not hard to please as regards soil, but it can be too rich and too moist; a good, somewhat sandy loam, suits them well.

Clean cultivation, disking for choice, is necessary and must be constantly repeated during the dry season to ensure good crops of fruit.

Pruned in the low-headed vase form, after about four years this form should be established, and after this as little pruning as possible should be attempted.

All fruit should be picked with the stem on, and carefully packed and faced to secure best prices.

The Grape Growing Business

In last November CANADIAN HORTICULTURIST, a portion of an address on grape culture in the Chautauqua grape belt was published. This address was given by Mr. D. K. Falvey of Westfield, N. Y., at the convention of the Ontario Fruit Growers' Association. His remarks on the cost of producing grapes are published herewith:

"The cost of production varies somewhat, taken individually, but as a whole, may be conservatively figured as follows, on vineyards producing an average of 900 eight-pound baskets or three tons per acre: Labor and expense to time of harvesting, \$13; baskets, \$18; harvesting, \$18; interest and taxes on investment at \$200 an acre, which is low value in New York, \$14; total, \$63 an acre. If grapes sell at ten cents a basket net, they would bring \$90, which would leave a net profit per acre of \$27 above interest on investment. If an average yield of 600 baskets or two tons an acre be figured it would be as follows: Labor and expenses to time of harvesting, \$13; baskets, \$12; harvesting, \$12; interest and taxes on \$200 an acre, \$14; total, \$51. If the grapes sell at ten cents they would bring \$60, leaving but \$9 profit above interest and taxes..

"Not taking the value of the investment into consideration it costs the average Chautauqua grape grower to put an eight-pound basket of grapes on the cars as follows: Labor to time of harvesting, two cents; package, two cents; harvesting, two cents; total, six cents. It is easy to figure the profits or losses if you know the size of the yield per acre.

"Treating the subject in ton lots, we must figure the cost per acre to time of

harvest the same as in baskets, namely, \$13. Picking a ton of grapes in trays at three cents a tray and sixty trays to the ton costs \$1.80; delivering with team and extra man, labor in vineyard, \$2 a ton; total, \$3.80. It requires an extra good vineyard to produce three tons an acre, the average with us being two tons. On a three-ton basis per acre, it costs \$11.40 for harvesting and \$13 for expenses up to beginning of harvest, or a total of \$24.40 an acre, without interest on investment included. It will be readily seen that the grower will have nothing left after paying interest and taxes with grapes selling at \$11 and \$12 a ton. We make no charge for packages as the buyer pays for the package after deducting its weight."

Planting Blackberries

John Ferguson, Murches, N.B.

To best understand blackberry culture, it must be known in the first place that the canes of blackberries are only biennial; that is, canes are produced one year, bear fruit the next and then die. There is no such thing as two-year-old plants (as with trees and vines) when we refer to the stems, though the roots may remain alive and growing for several years. One-year-old plants are used for transplanting in all cases.

It is considered best to plant in rows and then restrict the plants to hills. The rows should be four or five feet apart according to the variety to be cultivated, and the plants two feet apart in the rows. Be sure that the plants have small fibrous roots and do not set them any deeper than they were before removal. Cut the canes of these plants down nearly to the surface of the soil, because if not cut they will take away from the strength of the root in forcing growth. The whole strength of the root is required the first season to produce canes, as upon this growth will depend the fruit of the next year.

The weeds should be kept down and the soil level, as the blackberry plant should never be banked up. There must be clean cultivation or the fruit-bearing canes and those for the following season will suffer from lack of moisture.

Two years ago Dr. Wm. Saunders of Central Experimental Farm, Ottawa, sent out a few specimens of two new standard apples; viz., "Charles" and "Tony." I received two young trees. They have grown rapidly, and though the winter of 1908-09 was extraordinarily severe, the trees have shown no signs of injury from the weather.—Brenda E. Neville, Cottonwood, Sask.

Do not apply nitrogenous manures too liberally on a blackberry patch, as they induce a rank growth of canes at the expense of fruit.

Willows for Prairie Windbreaks

Norman M. Ross, Indian Head, Saskatchewan

FOR a quick growing shelter belt or windbreak suitable for the prairie farm or garden, there is practically nothing better than the hardy varieties of

the ends of the growing side shoots may be trimmed off once or twice during the summer.

Under ordinary conditions a willow

tered tightly on the branches and quite fragrant. It grows quite freely in the Niagara district naturally but can be had from most nurserymen.

The sweet-scented shrub (*Calycanthus floridus*) is a charming shrub bearing chocolate or purplish-brown flowers at intervals during the summer. As its name indicates, it is quite fragrant and is a desirable and pleasing plant.

The Japanese rose (*Kerria Japonica*) is a spreading delicate shrub with yellow tassel-like flowers. There is a variegated variety of this plant.

Spiraea Fortunei in its varieties *alba* and *rosea* makes a shrub almost suitable for bedding. So profuse is its blooming and being of a dwarf habit, it is useful for cemetery planting.

The dwarf barberry (*Berberis Thunbergii*) is a pretty little plant with small foliage and of a coppery-red colour, valuable for small hedges or borders. *Viburnum Opulus nana* is a neat dwarf variety of the snowball, but does not bloom.



Windbreak of Golden Willow Planted as Two-Year Roots in 1905
Photograph taken in August, 1908

tree willows. The best kinds are the Russian golden, the acute leafed willow and the laurel leaf willow. Though the golden willow cannot be called tender, parts of the new shoots are occasionally frozen back. The acute leaf variety seems to be the hardiest and is recommended for southwestern Alberta in preference to the others.

A belt of willows can be started very cheaply. This variety roots very readily from cuttings, so that it is usual to set the cuttings immediately in their permanent positions. For a belt of several rows the cuttings should be set from three to four feet apart each way. If properly cultivated they will grow very rapidly and quickly cover the ground, so that no further work should be needed after the second or third season.

For a single row the cuttings should be placed from eighteen inches to two feet apart. Shoots from two to three feet should be made the first season. It would be advisable in the following spring to cut these shoots back almost to the ground in order to induce the plants to branch out thickly from the roots and thus make a better shelter. In the third season the new belt should provide good protection for the vegetable garden. Under prairie conditions, when only a single row is set out, cultivation will, of course, be necessary every year to obtain the best results. In order to keep the belt within bounds and also to help thicken it up,

hedge should be from ten to fifteen feet high when five or six years old. In moist soils the growth will be more rapid than on high, dry land. Although it is generally supposed that willows must have a great deal of moisture, we find that the Russian varieties commonly used in the west withstand a considerable amount of drouth and are quite suitable for ordinary upland soils when given proper cultivation.

The great advantage of the willows in a comparatively treeless country, where many new settlers can ill afford to spend much money in nursery stock, is that they are so easily propagated. Any farmer having a few willows once established on his place can take cuttings from them every spring and extend his planting operations indefinitely without incurring further expense for stock.

Some Desirable Shrubs

J. McPherson Ross, Toronto

The shrubs mentioned in the March issue of THE CANADIAN HORTICULTURIST, page 62, are attractive and desirable enough for limited home grounds but for large parks a more extended list is necessary. I shall mention six small shrubs that do not grow over two feet or so and are, from their habits and flowers, worthy of a place in every ground. The *Daphne Mezereum* blooms the first thing in spring. It has small pink flowers clus-

Saving Aster Seed

What methods are practised to obtain the best seed from asters?—L.W.B., Morrisburg, Ont.

Aster plants from which seed is to be saved should be selected early in the season when the first flowers have developed. Select the best types possible. Keep the small blooms cut off. Save seed only from the largest and best developed flowers. Cut the flower-heads when the seed is nearly ripe. Dry them thoroughly before putting away for the winter. Keep seed in a dry, cool place.—Wm. Hunt.



A Tulip Bed Protected Against Dogs

Victoria Park, Peterboro. In this bed last spring some excellent blooms were grown but the crooked fence marred the general effect.

Some Hardy Ornamental Grasses Worth Growing

Roderick Cameron, Superintendent of Parks, Toronto

“ORNAMENTAL grasses” is a subject not much thought of or understood in this country, not half as much as it should be. For my own fancy, I would sooner plant them on my lawn than geraniums. The time is at hand when they will be more in demand for decorating our lawns than in the past. A bed of grasses and their allies to my mind are more beautiful and interesting than a bed of geranium or tulips, and in saying this, I have in my mind's eye the bed of them that was at the Pan-American Exhibition in 1901. It was a broken, irregular shaped bed and looked fully better than any other bed there. The varieties it contained as far as I can remember were as follows:

Eulalia Japonica (*Miscanthus Sinensis*) five feet, six inches high, green; in flower September 27.

E. Japonica variegatus, four feet high, variegated; in flower September 25.

E. Japonica gracillimus, three and a half feet high, narrow, mid-rib white; in flower September 20.

E. Japonica Zebrinus, bars of yellow across the leaves, zebra-like, and grows to from four to five feet high, a grand species; in flower September 20.

These composed the centre of the bed, and here and there were several varieties of bamboo, *Bambusa Metake*, and several others that I cannot now remember. Plume grass (*Erianthus Ravennæ*) and ribbon grass (*Phalaris arundinacea variegata*) filled up towards the edge of the bed and to break the level sky line there was a plant here and there of the giant reed of Southern Europe, *Arundo Donax*. The edge or border of the bed was planted with fountain grass (*Pennisetum longistylum*).

All of these, or any one of them would

hardy at Niagara Falls, but the *Pennisetum*. I find that if these plants are taken up and potted in the fall, or placed in boxes and put into a cool greenhouse until coming spring, they may then be divided, potted into small pots and placed in the heat, when they will make good plants for the following season.

They can also be grown from seeds very readily. By sowing the seeds in February, they will be ready to plant out in May. There are two more varieties of this *Pennisetum* that should be grown along with the above, *P. Ruppellii* and *P. macrophyllum sanguinifolium*. All three may be treated the same way.

There could be many others added to the above, such as *Poa trivialis variegata*, a very dwarf plant, and beautifully variegated, four inches, grand for edging a bed, very hardy, in flower September 1.

Blue fescue (*Festuca glauca*), would make a grand second line along the edge, six inches high and hardy, from Britain, in flower June 13; using *Molinia caerulea* from Central Europe, one foot high, as a third.

The variegated oat grass of garden origin, *Arrhenatherum bulbosum variegatum*, grows fifteen to thirty inches high. This would make a very bright fourth line, in bloom September 1. The *Elymus glaucus* from Turkestan, growing to three to four feet and giant rye grass (*Elymus condensatus*) could be made use of among those already mentioned.

I must not forget to mention *Arundo Donax glauca* four to five feet high, and *Arundo Donax variegata*, four to six feet high, and one of the most beautiful variegated grasses or reeds I know of. The type *Arundo Donax* grows fourteen feet high. These three reeds are hardy at Niagara Falls, but they would have to be protected farther north, or grown in tubs and kept in cold storage during winter. I found also that *Bambusa aurea* was hardy at the Falls; farther north it would have to be tubbed.

There are many other varieties of grasses that could be used to good advantage in many ways as follows: *Melica* grass (*Melica altissima atropurpurea*) and *Melica ciliata*, beautiful and graceful. *Gymnothrix latifolia*, *Gymnothrix Japonicum* and beard grass, (*Andropogon Sorghum*), seven feet high, of North America, should be in this collection. Pampas grass (*Gynerium Cortaderia argentea*) also should find a place in the col-

lection but must be grown in tubs and wintered in cold storage.

I hope this list will be the means of introducing some of these beautiful



Arundo Donax Variegata

grasses, if not all of them, to be grown upon lawns. They are well worth a trial.

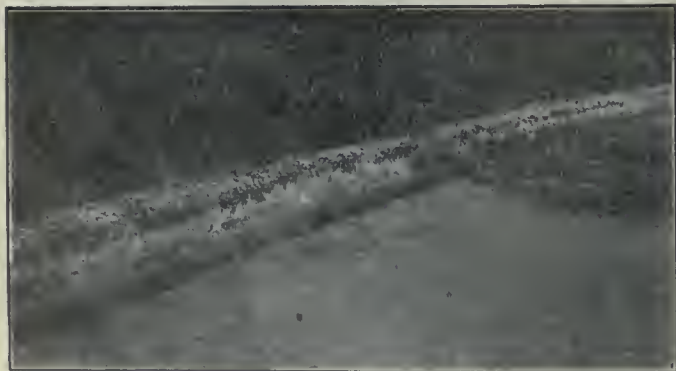
The Forget-me-not

This flower succeeds best in cold, damp ground, and in partial shade, but care must be taken that the soil is not sour. It frequently happens that low, damp soil in shady locations becomes sour, and unfit for growing flowers. Sow the seeds in rows covering to a depth of one-eighth of an inch and when the plants are large enough thin out or transplant to stand six inches apart.

Forget-me-nots grow and spread very rapidly and will soon cover the whole space. They are fine for edging beds of other flowers or for bordering the shady walk or drive. Seed sown in the spring will bloom in the fall and if given the protection of coarse strawy manure during the severe winter weather, will bloom much more freely during the cool moist weather of the following spring. For spring flowering, seed may be sown any time up to the middle of August, and protected, as mentioned, during the winter.

Myosotis palustris is the true forget-me-not, but some of the newer varieties such as *M. P. var. semperflorens* and *M. sylvatica var. alpestris*, are stronger growing and, while equally pretty, have larger sprays of bloom. Keep the ground constantly moist.

Even on the barest of prairie farms, hardy flowers of many sorts grow with but little care. No home in the west need be without their bright faces.



Poa Trivialis Variegata (Four to Six Inches High) Used for Edging

be a welcome ornament in groups upon the lawn, up next to the verandah, or in a border next to the line fence, or to hide any unsightly object, such as outhouses. Any of them look well around a fountain or lake, or small stream of water, and all of them are

The Best Gladioli and Their Culture

C. M. Bezzo, Berlin, Ontario

THERE is no class of flowers which will give better results with little care and under varied circumstances than the gladiolus. But this does not mean that they will not resent neglect, or repay care and attention. Neither does it mean that they have not their likes and dislikes. The gladiolus has a preference for sod ground, but in small gardens this is, in most cases, impossible. But we merely state the conditions best suited and leave the planter to be guided by the necessities of his environment. The gladiolus does not do well on heavy clay land; the ideal soil is a good sandy loam. It succeeds best on soil that has been made rich the year previous and when planted in such soil will not require any additional fertilizer; but when manure is used it should always be well rotted and used sparingly.

Prepare the bed in the usual way, digging the ground as deeply as can be done with the spade or fork, making it thoroughly fine all the way through. Plant the bulbs about four inches apart each way, covering to a depth of four or five inches in light soil, and half that distance where the soil is somewhat heavy. For a succession of bloom plant at intervals of ten days or two weeks, making the first planting as early in the spring as the ground is in thorough condition for working. Or the bulbs may be planted singly in flower pots in the house and set out when the weather gets fine and warm.

The date of the last planting must be governed by the time it is usual to have fall frosts. In localities where it is usual to have heavy fall frosts about the middle of October, the last planting should not be made after the middle of June. Four months back from the time the first fall frost is expected is the latest date we would recommend for making the

last planting. Always plant the smaller bulbs first, as they will lose their vitality if left too long unplanted, leaving the larger ones for the last planting.

When the foliage appears above ground loosen the surface soil with the hoe and keep it loose throughout the season. This not only admits the air to the roots and prevents evaporation of moisture, but also keeps down weeds. Do not allow them to suffer for water, especially during the blooming period.

If the bloom is heavy, it is advisable to give support either by staking or by strings arranged as follows: Drive stakes in the ground at intervals of every five feet in each direction in such a way as to form a block five feet square, allowing the stakes to project out of the ground from twelve to eighteen inches according to the height the bloom spike is expected to grow. To the top of these fasten a strip of board of sufficient size and strength for the purpose, stretching from one stake to the other. If good stout stakes have been used and driven firmly into the ground good strong twine or wire will answer the purpose of the strip of board. Take a good stout twine and fasten the end to one of the strips, running it between the rows to the other end of the square, bring it back between the next row, and so on until the whole square has been gone over. Then start at the other side and run the string the other way of the bed, knotting firmly at each cross string. This will leave each spike in a perfect square by itself, provided the bulbs were planted at regular intervals.

The Best Gladioli

Among the lists of plants presented to the Ontario Horticultural Association at its last convention by the committee on plant nomenclature, were lists of the best

fifty, the best twenty-five and the best twelve hybrid gladioli. The list of fifty is published herewith in full. The best twenty-five are indicated by this sign (°), and the best twelve by an asterisk (*).

*°Afterglow. — Salmon fawn shade, with pale blue centre; large flowers; massive spike.

Aline. — Pure white, striped crimson; large flower.

*°America. — Pale delicate pink; large flowers; strong habit.

*°Augusta. — White with blue anthers; large spike, lateral spikes well developed.

°Attraction. — Detp, rich crimson, white throat; medium grower.

*°Baron Joseph Hulot. — Deep violet blue; medium flower.

Berlinia. — Shell pink, shaded and flaked darker.

Blanche. — White with purplish rose markings.

°Blue Jay, (Groff's). — Purplish blue with lighter shading.

°Brenchleyensis. — Bright scarlet; large spike; strong grower.

California. — Rosy lavender, lighter markings in throat; large spike.

Canary Bird. — Pleasing shade of yellow, carmine markings at base of petals.

Cardinal. — Dark cardinal scarlet; large showy spikes.

Ceres. — Pure white with purplish rose markings.

Contrast. — Reddish scarlet, white centre.

*°Dawn, (Groff's). — Pale salmon shaded lighter, suffused with carmine or claret on inferior petals.

Dr. Hogg. — White, heavily striped and marked with carmine; large spike.

Eldorado. — Yellow spotted maroon; medium sized flower.

*°Evolution. — Delicate rose, shaded darker; good spike.

Gen. de Nansouty. — Rich light purple,



A Corner of Charlottetown, Prince Edward Island, where the City Meets the Waters of its Fine Harbor—A City where Tree Planting is Fully Appreciated
Photograph kindly furnished by Mr. A. B. Warburton, M.P.

lower petals shaded crimson, creamy spots.

**Eugene Scribe*.—Pale rose shaded carmine; good habit.

**George Paul*.—Deep crimson shaded yellow, spotted violet-purple.

George B. Remsen.—Carmine red veined and shaded lighter; large spike and flower.

**Giant Pink*.—Deep rose with markings of deeper pink; strong flower.

**Jane Dieulafoy*.—Creamy yellow, blotched crimson.

Klondyke.—Primrose yellow, blotched crimson.

**Lady Howard de Walden*.—Bright yellow, inferior petals flaked with carmine.

**La Luna*.—Creamy yellow heavily blotched with chocolate carmine.

Lamarck.—Cherry red, tinted orange and carmine, centre white.

**Little Blush*.—Creamy white shaded yellow, heavily striped and shaded carmine.

Magnificus.—Rich reddish crimson, with white and carmine markings; strong grower.

May.—White shaded cream with rosy carmine markings.

**Meadowvale*.—Almost pure white, slightly shaded crimson and pink.

Mephistopheles.—Large flower, red with dark red and creamy shading.

Mrs. Beecher.—Rich crimson scarlet, with white throat.

Octoroon.—Salmon pink; pleasing.

Pacha.—Dull orange with reddish markings on throat on creamy ground; large flower.

**Peace*.—White, slightly suffused pale carmine; large spike; very conspicuous.

**Philadelphia*.—Deep pink, shaded and diffused lighter; strong grower.

**Princes*.—Bright red, lower petals streaked and blotched lighter.

**Prophetesse*.—Pearly white almost pure; round, compact flower.

**Rosella*.—Light rose shaded purple and white; large flower.

**Scarsdale*.—Lavender; strong grower.

Shakespeare.—White, blotched rose color shaded carmine.

Snowbank.—White slightly marked red at base of petals; large spike.

Sulphur King.—Clear yellow shaded lighter.

**Victory*.—Bright yellow; large spike and flower.

Waukesha.—Lily-shaped flower; crimson scarlet, centre creamy white and carmine.

White Lady.—One of the best whites.

**Wm. Falconer*.—Creamy rose shaded and spotted red and carmine.

Send enquiries to our question and answer department. The replies may help you and others. Send name and address. Only initials will appear in print.

Lawn and Garden Hints for June

COMPLETE the sowing of seeds of hardy garden vegetables. If the garden is small and there is room for only a few things, sow salad crops, radishes and other kinds that make quick growth and do not require much room. Carrots, parsnips, turnips, cabbages, cauliflowers and similar kinds, need not be considered for gardens of small area. Where there is plenty of room, however, grow everything that you can.

As soon as the young plants appear commence cultivation. Use the hoe frequently. Do not wait until the weeds get a start. By stirring the soil early many weed seeds that have sprouted and not yet made an appearance above ground, may be killed. Surface cultivation also prevents the evaporation of soil moisture. It



A Neat House Front in Toronto

forms a loose earth mulch through which water cannot escape.

Apply water to the vegetable garden in the evening; but water at any time rather than allow vegetables to suffer. Mere sprinkling is useless. Give the ground a good soaking. It is better only to water a portion of the garden properly at one time, rather than to water all in a half-hearted way.

Hand weeding and thinning will be necessary in the case of onions, parsnips, carrots, beets and so forth. When once thinned, however, late weeding may be done with the hoe. When thinning beets the leaves of discarded plants may be used as table greens.

The Swiss chard, a type of beet, is excellent as a boiled green. Sow the seeds early. Thin the plants when up. Other little known vegetables that are worth trying are kale, Brussels sprouts, cardoon and Chinese cabbage.

Sweet corn may be sown any time now. A sweet flavored variety with yellow kernels is Golden Bantam.

Transplant cabbages, cauliflowers and

tomatoes. The latter may be trained on stakes and on fences.

When danger of frost is past, sow the seeds of tender vegetables such as cucumber, pumpkin, squash and melon. Early maturing varieties of muskmelons will grow in many districts where usually it is thought impossible.

WITH THE FRUITS

The blossoms of newly set strawberry plants should be removed. This will divert all the plant's energy to growth and the production of runners. Cultivate the new patch continually.

To get larger and better fruits on your trees thin them after the so-called "June drop." If you think this operation unnecessary, experiment this year by thinning the fruit on some trees and leaving others unthinned. Note the difference in results.

Spray fruit trees and bushes with Bordeaux mixture and Paris green. This is the best-known remedy. There are others that give equal satisfaction and are easier to prepare and handle. Consult the advertising columns of THE CANADIAN HORTICULTURIST.

THE FLOWER GARDEN

Plant gladiolus corms. This is a flower that should be appreciated and grown more than it is by amateurs. Read the article on page 141.

In the annual flower beds be sure to have plenty of mignonette. It is a useful flower for cutting. Among other common annuals that should be in every garden are marigolds, petunias, eschscholtzia, calliopsis, salpiglossis, balsam, zinnias and poppies. For edging, use portulacca, sweet alyssum, lobelia and candytuft.

One of the best general purpose border plants is the hardy perennial phlox. Give it a good rich soil and keep the grass and weeds away.

The hollyhock is useful in the background of borders. Do not plant them singly; they are more effective when grouped.

The names of plants suitable for the hardy border are legion. Select from the seed catalogues a good assortment, and have this year a border that will surpass past efforts.

Plant dahlias and cannas when all danger of frost is past. At that time also set out bedding plants such as geraniums, coleus, castor oil plant and iresine.

Grow water lilies at home. Fill a half-cask about one-third full with soil (good loam, sand and leaf-mould), set the plants in this and fill the tub with water. The tubs should be sunk to the rim in the border of the lawn.

Roots of grasses near flower beds are apt to undermine them and rob the flowers of food and moisture. Better run a sharp spade into the ground about the edges of the beds once a month.

Tuberous-rooted Begonias

By "Amateur"

OF late years the use of tuberous-rooted begonias as decorative plants for the outdoor garden has very largely increased and no doubt their popularity for this purpose is due to their



A Border of Tuberous Begonias

variety and brilliancy of color, their freedom and continuity of bloom, as well as to the fact that they succeed best where most other plants would fail and that their cultivation involves neither trouble nor expense. They range in color from purest white through delicate creamy shades to yellow and from yellow to brilliant orange, from pale pinks and delicate salmon shades to the deepest rose; and from the brightest of scarlet to blackest crimsons. They are a mass of bloom from June to November, and do best in shady spots where few others would bloom at all.

To grow begonias successfully requires just three things—and by the way these are the identical three things that any other plant requires—viz., the right kind of soil, a suitable situation, and proper care. The right kind of soil is one composed of equal parts of well-rotted sods, good garden loam and sand. The most suitable situation is one on the north side of a building where they will be shaded from the sun all day except a short time morning and evening, and where they will be sheltered from strong winds. After they are once planted out all the care required is to mulch them with thoroughly rotted farm yard manure and water them so often that the soil is always moist but never wet.

The preparation of the plants previous to their transfer to the garden requires some care and attention. In starting the tubers they should be planted in shallow boxes during March or April using a mixture of rotted sods and sands and planting them about one inch or less deep.

They should be watered somewhat sparingly until growth begins, when they will require more moisture.

In planting the tubers, be sure that you plant them right side up and it is not always easy to tell which is the right side; usually, however, there is a depression where the last season's stem was which will show you, and quite frequently they have begun to grow by planting time and then, of course, there is no difficulty in telling the right side.

When all danger from frost is past, say at the end of May or beginning of June, transfer them to the garden, placing them from one to two feet apart, and in a very short time they will be in full bloom.

It is advisable to buy mixed varieties because in the first place, you are almost certain to get mixed varieties even if you pay the extra price for separate colors; and in the second place, they can be moved so easily that if you find that you have a color where some other would look better, you can move it after giving it a good soaking and the next day it will show no sign of its removal.

Do not water them when the sun is shining on them or the leaves will likely be scorched. At any other time even the heaviest rains do them no harm; the flowers are not broken and though they droop and bend they will rise again uninjured as soon as the rain is over.

After the first heavy frost in fall, they should be carefully dug and the greater part of the top cut off and then carefully dried in the shade and stored where frost will not reach them; but not near a furnace or hot water pipes.

Begonias may be grown from seed but as the seed is as fine as dust, there is great danger of covering them too deeply, so that the ordinary amateur will no doubt

prefer to buy the tubers, especially as they can be had for about three cents each when bought in quantities.

Have you the right soil and the right position for them? If so, try a hundred and you will have every satisfaction; if not, don't plant one or you will be disappointed.

The Old-Fashioned Cockscomb

The cockscomb (*Celosia* sp.) is almost too stiff and formal for effective planting but is worth having for the sake of curiosity alone. Many of the flowers will measure nearly a foot long and two inches or more across the top if given good cultivation. Seed may be sown in the open ground any time after the weather becomes fine and warm. It may also be sown in the cold frame in the early spring.

When transplanting select the most stocky plants as they are most likely to give the finest and largest heads of bloom. Set the plants one foot apart each way in rich soil that has been thoroughly pulverized. They may be used for the outside row of taller growing mixed plants and are sure to attract attention wherever grown.

Give plenty of water during dry weather and keep the surface soil loose and fine at all stages of its growth. If the flower heads are cut before the seeds ripen and hung up to dry in a cool place, they will retain much of their brilliant coloring and make fine inside decorations. They are grown in many shades and colors.

All hardy currants, black, red and white, may be planted in any soil in Saskatchewan where wheat does well. Currants need no special protection or shelter in that province. They respond quickly to good treatment, but stand more neglect than almost any other fruit.



A Tulip-Bed Fulfills Almost the First Burst of Bloom in the Springtime

Yellow Disease or Blight of Asters

L. Caesar, Ontario Agricultural College, Guelph

LAST fall, Mr. Wm. Hunt, florist at the Ontario Agricultural College, asked me to look into what appeared to be a disease of asters that seemed to be fairly prevalent last season in many districts. After examining a number of plants at the college, I found that the trouble is the same as was described in Bulletin 79 of the Hatch Experiment Station. Prof. R. E. Smith of that station investigated this disease very carefully seven years ago and gave it the name of the Yellow Disease or Blight of Asters.

SYMPTOMS

The symptoms are so conspicuous that anyone can easily identify affected asters. The diseased plants are characterized by the leaves and upper parts of the stem being of a sickly greenish yellow color. When the flowers appear they too take this greenish yellow color instead of being the normal white, red or blue, and so on. Moreover, each flower assumes more of a globular shape than is the case with healthy flowers. This is caused chiefly by the outer or ray florets curving in towards the centre instead of expanding somewhat horizontally. If the disc or central florets are examined it will be seen that they are more cylindrical and elongated than is the case in healthy flowers, and the stigma and style of the pistil protrude about twice as far as they should in normal plants. The leaves in addition to being sickly and yellowish, are usually narrow and small, thus giving many of the affected plants a spindly appearance. Sometimes one or more branches will show very little or almost no sign of the disease, while all the other parts are affected. Very badly diseased plants become dwarfed and though many flowers may appear they look like clusters of very narrow greenish-yellow leaflets rather than true flowers.

CAUSE NOT KNOWN

Professor Smith has given much study to the cause of the disease and has not found any organism present in any part, so that it is in no way associated with root aphids, white grubs, fungi or bacteria. Hence the true cause is still a mystery. Practically all that has been discovered along this line is that the plant for some reason is unable to assimilate to the proper extent the food that it manufactures in its own green parts. Hence we have an excess of starch and of certain acids and of tannin present; failure to use these, of course, means semi-starvation.

It is supposed by some that one flower will contract the trouble from another, or that it will be worse if plants are placed in the same bed year after year, or grown from seed from infected beds. Professor Smith's experiments tend to show that the disease is not contagious, and that it is not spread by seed or by soil. He finds

moreover that it cannot be due to lack of certain substances in the soil because it is about equally prevalent on different kinds of soil, such as sand, sandy loam, clay loam, and heavy clay. No variety seems to be exempt, though some years, as for example last year at Guelph, white asters are worse attacked than others. This does not seem to hold in every case. It has been found that the plants are not so likely to be attacked if they are grown on the raised benches of greenhouses or on raised boxes outside. The cause of this

is not known. From the fact that some seasons the disease is much worse than others, it is believed that weather conditions must have a great deal to do with its severity.

PREVENTIVE MEASURE

Though this disease, according to Professor Smith, is not to any extent prevented by selecting new soil, yet there are certain other diseases that attack asters and as root aphids are often severe, it is wise to endeavor if possible to have fresh soil, or soil that has been sterilized, in the hotbeds where the plants are started, and also to place the permanent beds in fresh soil.

Make a Fern Bed

C. M. Bezzo, Berlin, Ontario

A GROUP of fine ferns makes a most magnificent display and should be found in every flower garden where a suitable place can be found for them. Select a place in the shade of trees or buildings. Make the conditions as near as possible like those under which the fern lives and thrives in its native haunts. The best ferns are not found in dense shade where the tree tops form a complete canopy impenetrable to the rays of the sun, nor in the open where they may be exposed to the full blaze of the noon-day heat. The ideal place for ferns is where the tree tops are sufficiently thick to merely break the direct rays of the sun during the greater part of the day. Where the shelter of trees cannot be obtained, an east or northwest exposure may be used. But in these locations they should be protected by a fence or some other arrangement, from the biting north and east winds.

The underground conditions should be studied the same as those overhead with a view to imitating the native haunts of the fern as much as possible. Our Canadian woods are rich in ferns, and here is the ideal place to study their requirements. The best are usually found in a heavy leaf mould and wood-dirt.

Go to your native woods for your ferns. In this Canada of ours there is no need to buy from abroad ferns for the garden. There is hardly a county in this province of Ontario, and certainly not a province in this Dominion, in the woods of which ferns do not grow in plenty, which for beauty of form and foliage, and ease of culture, cannot be surpassed by those of any other country in the world.

In transplanting ferns they should be lifted while the ground is wet, either early in the spring before the ground has dried out, or immediately after a rain. Take several pieces of burlap, one for each fern, and large enough to cover the roots and tie at the top to prevent the earth falling away. Select the fern most pleasing to your fancy and, after cutting the

top off, if it has grown to any size, lift it very carefully with a spade, leaving as much of the soil as possible around the roots. Wrap immediately in the burlap to keep earth and roots intact, and plant in the fern bed as soon as possible, after removing the burlap. Give a thorough watering and put on a two-inch mulch of pine needles, moss, sawdust or anything that will prevent the rapid evaporation of the moisture.

Early in the spring is the best time for removing ferns, although it may be done any time during the summer, but much more care is required in order to be successful. Where the moving is done in the summer and the fern has made some considerable growth, the leaves and young shoots should be cut back two or three days in advance of the removal, in order that the plant may regain in some measure its physical equilibrium before the shock incident to its removal and the mutilation of its roots is imposed upon it.

To prepare a bed for ferns the space should be dug out to a depth of twelve to fifteen inches and filled in with a compost, made as follows: Two parts leaf-mould, two parts meadow soil, or well rotted sod, one part well rotted cow manure, and one part sand. Add one pint of charcoal to each bushel of the mixture as near as can be estimated. There is very little danger of adding too much. Where the bed is made some little time in advance of the planting, one pound of wood ashes may be added to each bushel of the mixture.

After the plants are well started and in active growth, they may be given liquid food in considerable quantities—pulverized cow or sheep manure one ounce to two gallons; or potash one ounce to five gallons of water.

Planting varieties not adapted to soil and climatic conditions is one of the worst errors in fruit growing.—Col. G. B. Brackett, United States Pomologist, before the American Pomological Society at St. Catharines last September.

Some Insects Injurious to Vegetables

Arthur Gibson, Central Experimental Farm, Ottawa

AT the time the seed leaves of turnips, radishes and other cruciferous plants first appear above ground they are often attacked and the plants completely destroyed by the so-called "turnip fly," which is a small, very active, shining, black beetle, about one-eighth of an inch long, with a yellowish stripe on each side of the wing-covers.

As soon as the beetles are noticed, the plants should be dusted with Paris green and land plaster, one pound of the former to twenty of the latter. This is best done when the plants are covered with dew. If turnips are not sown until the third week in June, injury from this insect will be avoided, as by that time the swarms of beetles from the first brood have, as a rule, disappeared.

THE SQUASH BUG

Although the squash bug is seldom abundant enough as far east as Ottawa to do any serious harm, still it is one which should be familiar to all growers of cucurbits. In western Ontario the squash bug is usually abundant enough to be decidedly injurious. It is dark brown in color, about three-fifths of an inch long, and, being a true bug, gets its food by suction. The winter is passed under rubbish, etc., and as soon as the young plants are up in spring they immediately begin their depredations. The sexes pair at once and soon the clusters of eggs may be found on the under side of the leaves. There are two broods in the season.

In the earlier part of the season the old bugs may be trapped by placing shingles or short pieces of boards among the plants. The bugs hide under such shelters at night and the next morning when the boards are examined can be easily destroyed. When the bugs are young they can be killed by spraying the vines with kerosene emulsion, or whale oil soap. As soon as the crop is gathered if the vines are burned at once many of these insects in all stages will be destroyed. It has been found a good plan in districts where the squash bug is prevalent, to plant a few hills of the ordinary squash among melons, cucumbers, etc., so that they will appear above the ground a week or so before the other plants. The bugs are particularly fond of squash and will at once collect upon them, where they can then be killed.

THE STRIPED CUCUMBER BEETLE

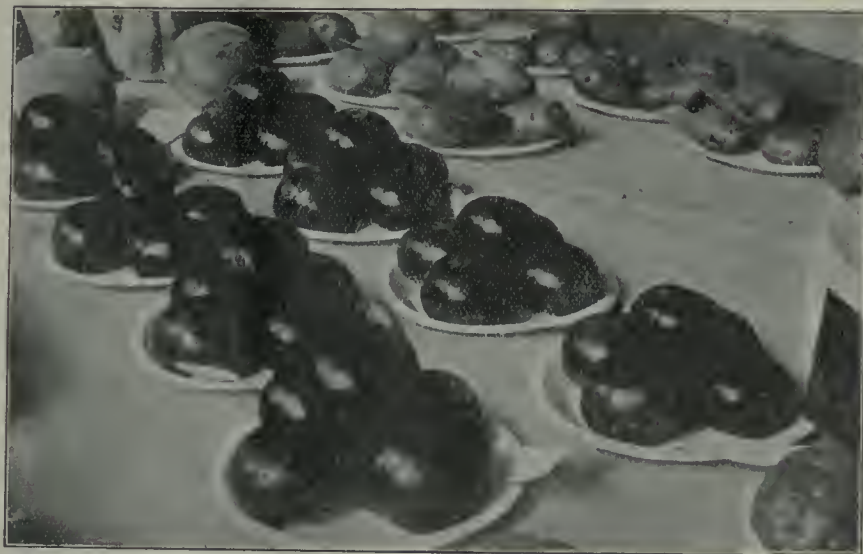
The striped cucumber beetle passes the winter in the perfect state and as soon as the young cucumbers, squashes and melons appear above ground, it at once begins to attack them. The beetle is yellow with three black stripes down the back and is about two-fifths of an inch in length. The larvae are slender, white, worm-like grubs with dark heads; they live in the ground, feeding on the roots

of the plants, sometimes even burrowing up into the stems.

If frames of cheese cloth are put over the young plants, these will be protected from the attacks of this insect. When the plants have grown large enough to require the removal of the frames, these of course can be dispensed with, and by that time most of the first brood of the beetles will have disappeared. If the young plants are sprayed with the poisoned Bordeaux mixture, they will also be protected largely from the attacks of this beetle. The beetles of the second brood are very active and fly freely from plant to plant. Paris green and land plaster (one of the former to fifty of the lat-

For cabbages and cauliflowers, the tarred paper disks which are made from ordinary tarred building paper, cut three inches in diameter, with a slit running to the centre, so as to allow of their being put round the plants, have proved very useful. The disks, of course, should be pressed down close to the ground. The flies do not lay their eggs to such an extent on plants thus protected.

The Cook carbolic wash which is made with one quart of soft soap, or one pound of hard soap, half a pint of crude carbolic acid, and one gallon of water, has proved very useful for radishes. This mixture after it has been boiled together for a few minutes is the stock solution, and,



Tomatoes Grown in a School Garden by the Children

The school gardening idea is rapidly gaining ground and should be encouraged in every way. The tomatoes illustrated were exhibited at the Niagara District Horticultural Exhibition two years ago by the Rittenhouse School at Jordan Harbor, Ont.

ter) if dusted over the plants at short intervals will kill large numbers of the beetles.

ROOT MAGGOTS

These well known small white maggots which bore into the roots of radishes, cabbages, cauliflowers and so on, and into the bulbs of onions, may be treated of, from a practical standpoint, as the same species. The perfect flies are similar in appearance to the ordinary housefly, but are smaller and more slender. They appear in gardens as soon as the young plants are above ground and lay their white eggs on the stems close to the earth. The maggots hatch in a few days and work their way down beneath the soil and into the roots, or bulbs, which are eventually destroyed. Unfortunately, no good practical remedy is known for these insects. In our experiments we have found that where white hellebore had been dusted along the rows of onions once a week, from the time the young plants first appeared above ground, good results were obtained during some years.

before using, one part by measure is added to fifty of water. It should be applied first just as the plants appear above the ground, and afterwards once a week until the radishes are a marketable size.

During the last two years we have been experimenting with sulphate of iron as a remedy for root maggots. This was highly recommended to us. From results obtained, the late Dr. Fletcher thought it wise to advise its use in the proportion of two ounces to every gallon of water, the application to be the same as in the case of the Cook carbolic wash.

In many Saskatchewan homes it is thought that no fruit can be grown. Try it once, and give the bushes as good a chance as you would give a cabbage plant.

"Be up-to-date!" is the feeling among the best orchardists in Nova Scotia. Old lines of hose, old pumps, old methods are being thrown aside and the best taking their places.

The Canadian Horticulturist

Published by The Horticultural
Publishing Company, Limited

PETERBORO, ONTARIO



The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO
QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD
ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

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1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription price in Canada and Great Britain, 60 cents a year; two years, \$1.00. For United States and local subscriptions in Peterboro, (not called for at the Post Office) 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than \$1.00.

4. Change of Address.—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising Rates quoted on application. Copy received up to the 18th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

6. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT.

Since the subscription price of The Canadian Horticulturist was reduced from \$1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with Dec., 1909. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Some months, including the sample copies, from 10,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

January, 1909.....	9,456	January, 1910.....	8,925
February, 1909.....	9,310	February, 1910.....	8,967
March, 1909.....	9,405	March, 1910.....	9,178
April, 1909.....	9,482	April, 1910.....	9,410
May, 1909.....	9,172	May, 1910.....	9,505
June, 1909.....	8,891		
July, 1909.....	8,447		
August, 1909.....	8,570		
September, 1909.....	8,605		
October, 1909.....	8,675		
November, 1909.....	8,750		
December, 1909.....	8,875		

Total for the year .107,638

Average each issue in 1907, 6,827
" " " " 1908, 8,695
" " " " 1909, 8,970

Sworn detailed statements will be mailed upon application.

OUR PROTECTIVE POLICY.

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

BRITISH COLUMBIA INSPECTION

During the shipping season for nursery stock just passed, we received from British Columbia another strong argument in favor of the establishment of an inspection station at or near the eastern boundary of that province. On more than one occasion nursery stock arrived at Vancouver in such quantities that much of it was tied up for days before it could be handled by the inspectors there. On a particular day in April, at least six cars were on hand at one time, and it was over a week before all the stock was inspected. At a critical time of the year with the season advanced and the warm weather starting the buds, six carloads of nursery stock were held up, and some of the stock perhaps killed by the delay, because the inspection service was not sufficient to cope with the situation! Is it any wonder that we hear frequent rumors to the effect that eastern stock is discriminated against to serve the personal interests of certain parties employed by the government and interested at the same time in local nurseries?

If these reports are true, and they should be investigated, they constitute an outrage against not only eastern nursery concerns, but also their customers in British Columbia. The fact that on one day six cars or more of outside-grown stock arrived in that province—and the season's operations extend over many weeks—proves that there is plenty of business to warrant the establishment of an inspection station at the eastern door of the province. A just consideration of the situation would settle the matter in favor of a fair chance to everybody.

BRITISH COLUMBIA APPLE SHOW

Those interested in the proposed apple show to be held at Vancouver, B. C., early in November are making plans for a show that will be a credit to the province. It is announced that probably \$25,000 will be offered in prizes, ranging from \$1,000 for carload lots down to small amounts for plate exhibits. Various organizations, including fruit growers' associations, have promised their support, and many prominent individuals are lacking their promises with active work. No class of citizens in Canada can make such a show a success better than can the fruit growers of British Columbia. When these men decide to do a thing they usually do it.

An apple show such as is proposed would be a great advertisement for the fruit industry of British Columbia. It would bring the buyers and producers in close contact and many things would be learned one from the other. Of particular importance in this regard is the selection of the dates for the show. If it is held either the week preceding or the week following the Spokane show, a greater attendance of buyers from across the Atlantic may be expected. It is hoped that nothing will be left undone to make the show a huge success.

As mentioned in our February issue, there is one factor that admits of criticism, and that is the attempt to designate the show a "Canadian National" one. In this connection it is misleading to use the word "Canadian" in its broadest meaning. The proposed show will be confined to British Columbia effort and to British Columbia products alone. It will be Canadian in a restricted sense—just as any fall fair is Canadian, being held in Canada—but the

use of the word in connection with the proposed apple show is incorrect.

The British Columbia people are literally adopting the suggestion that appeared in our February issue to the effect that better provincial shows are needed. They are planning to hold a big provincial apple exhibition that will eclipse anything of the kind ever held in Canada. May they realize their ambition! Eastern Canada will applaud the effort and take pride in the result. But be accurate in name and call the show the British Columbia Apple Show.

A PACKAGE FOR TENDER FRUITS

To market tender fruits satisfactorily, particularly peaches and plums, it is necessary that a suitable package be used. The Climax basket, used so largely in the Niagara district, is unsuitable in every way for the carriage of the better grades of fruit. This was pointed out in THE CANADIAN HORTICULTURIST for August, 1906, and in an appendix to the report of the Ontario Fruit Growers' Association for 1906, and is not a new question as has been stated recently. It is, however, a question of importance and one that requires the earnest consideration of the fruit growers.

In our previous remarks on this topic this statement was made: "The time will come in Ontario, as it has in nearly all states across the line, when better packing and a better package will be demanded for the best class of peach trade." This opinion we still maintain. The fruit industry has grown so rapidly in recent years and as each succeeding year has shown the worthlessness of the Climax basket for certain purposes, it would seem that the time predicted is near at hand. In the article mentioned we recommended the adoption of the six-basket carrier, commonly called the "Georgia carrier." Except for long distance shipments, as to the west, for which the California flat box probably is better for some fruits, no package would give more general satisfaction for a variety of fruits and purposes than this carrier. It is light and strong, holds three-quarters of a bushel, gives good ventilation, is neat in appearance, and with the divider, six baskets and cover, the cost is not great. It is put together with strong wire staples, well clinched on the inside. The panel heads afford a sure grip to the hands, and damage from breakages rarely occurs. When loaded in cars, the shape of the package permits a perfect fit; the tiers are separated for ventilation by means of inch slats tacked across the ends of the package.

The Climax basket is not suitable for fancy packing. Practically the only style of pack that can be used in it is a straight 4-4, three-layer pack, with the fruit on end. Packing tender fruits on end is bad practice, but the flimsiness of the sides and handles of this basket permits no other. Spreading the handle to admit the cover loosens the fruit, and as a consequence fruit packed in any other way than the pack mentioned would be squeezed out of place, and even the 4-4 pack often arrives at destination in a confused state. Furthermore, the Climax basket is too light to stand much handling and long shipments. The leno cover, and even the veneer cover, permits pilfering of the fruit and allows dust and dirt to enter. This package may be useful for placing inferior grades on a near market, but for putting fancy grades on any market it is unprofitable.

Again, we recommend to our fruit growers, particularly to those in the Niagara district, the adoption of the six-basket carrier. It may cost a little more than the Climax basket for same bulk of fruit, but it would pay. The gain in lessening loss from dam-

age in transportation, through breakage of package and pilfering of fruit, and in increased price for fancy packed fruit in a better package would more than offset the extra cost. Our fruit growers should look into the possibilities of the six-basket carrier.

Among the many schemes adopted by horticultural societies to interest their members and others in floriculture, none appears more novel than one recently instituted by Mr. Geo. Vickers, president of the Barrie Horticultural Society. Mr. Vickers is a dry goods merchant and recently distributed broadcast throughout his town this notice: "One Geranium in Bloom in a three and a half or four-inch Pot with every \$1.00 Worth of Stockings Bought and Paid for on Friday and Saturday." The plants were grown by a local florist, and Mr. Vickers took this means of combining business with his hobby, horticulture. As anything that will help to make people more appreciate flowers and floriculture is worth promoting, this scheme might profitably be adopted by merchants elsewhere.

PUBLISHERS' DESK

We desire for our files one or two additional copies of the February, 1910, issue of THE CANADIAN HORTICULTURIST. Any of our readers having a copy of this number they do not desire to keep will confer a favor by mailing it to this office.

The illustration on the cover of this issue shows a scene in University Park, Sackville, N. B. More views of maritime province horticulture would be published on our front cover and on the inside pages if they were available. Our friends in these provinces are asked to send photographs of orchards, parks, lawns, gardens, and so forth, for use in this magazine. With them, send notes descriptive of the particular scene photographed.

"I am well satisfied with the results from my advertisement which has been running in the last four issues of THE CANADIAN HORTICULTURIST. I shall continue this advertising another year if all is well." This is an extract from a letter recently received from C. P. Newman of Lachine Locks, Que., grower of small fruits. We are constantly receiving from advertisers statements of this kind. They show the value of our columns as an advertising medium. Take the hint!

On another page of this issue will be found our classified advertising column headed "For Sale and Wanted." It will pay you to glance through this column of small advertisements. There may be something there that will interest you.

There are many of our readers to whom this column can be of value. The man who has something to sell that fruit growers or gardeners buy, the man who wants to get a position on a fruit farm or as a gardener or who perhaps wants to employ such a man, the man who has a fruit farm to sell or who wants to buy a good fruit farm, and in fact a large percentage of our readers, could profitably use this column. You may never have advertised before. Here is a good opportunity to learn at a small cost the value of advertising.

Whether you place an advertisement there or not, read this column each month, and when writing to advertisers be sure and tell them that you saw their advertisement in THE CANADIAN HORTICULTURIST.

Horticulture on Prince Edward Island

Rev. F. A. Wrightman, Montague

PRINCE Edward Island, though a small province does its farming generally speaking on the large. Intensive farming in the true sense has not been practised to any considerable extent. This is not because of any lack of adaptation, but because of the comparative absence of a sufficient demand in the local markets and the further lack of proper facilities for reaching more distant ones. Lack of express arrangements, iced cars and too frequent handlings are serious defects in our transportation conditions. Market gardening, therefore, with the exception of what little may be needed to supply the limited demand of the small towns is not followed, except for the farmer's table. So limited are the markets that even with the small attention paid to this aspect of agriculture, a glutted market is the common condition in the season of fruit and vegetables; and the prices are often of the lowest.

Oats, wheat and potatoes are the Prince Edward Island staples and these wholly occupy the farmers thoughts and attention. He cannot seem to adapt himself to a small acreage. A hundred acres, and often double this amount, is as little as he cares to bother with. Here he uses his gang plows, combination seeders, harvesters and other complicated machinery. This is his ideal of farming. A few acres in fruits and vegetables, largely cultivated with hand tools, would strike him as a serious drop in the dignity of the profession. This would seem to be a more fitting occupation or diversion, by way of pastime, to the man who had retired from active life. These ideas are the outcome of generations of usage—a usage that has largely been made necessary because of market conditions.

NATURAL CONDITIONS FAVORABLE

Notwithstanding the comparative absence of intensive farming as represented in the cultivation of vegetables and small fruits, it is doubtful if there is any part of the Dominion where the natural conditions are more favorable than here. The Island itself is often spoken of as "the garden province." This is not because of its diminutive size, but on account of its uniform fertility. The land is smooth, gently undulating, free from rocks and swamps, and unencumbered by small stones. The soil is a light sandy loam, warm, and wonderfully easy of cultivation. The natural drainage is about perfect. The summers are bright and warm with generally cool nights, while the rains are, as a rule, frequent but not excessive. The autumn is mild and open to a degree not experienced on the main land. Insects and diseases are much less numerous and destructive than in other places. The season being a little later than most main land sections, Prince Edward Island products are matured when outside markets are clean, thus removing competition. It will be seen, therefore, that these conditions, both of soil and climate, are about perfect for the purpose of the small fruit and vegetable grower.

This claim is borne out by the actual results. Anyone attending our provincial exhibition or the Charlottetown market will be surprised at the excellence and variety of the stuff grown. The small fruits, such as cherries, strawberries, raspberries, blackberries, currants and gooseberries do amazingly well. I believe it is a law of nature that the higher the latitude where fruit will come to full maturity the better will be its quality. There seems to be something in this alternating of cool nights with bright warm days to give firmness and flavor and lusciousness to fruits and vegetables grown

under these conditions. These qualities are noticeable to a marked degree in the fruits and vegetables grown in Prince Edward Island; but, the great need is a market.

MORE AVAILABLE MARKETS WANTED

Charlottetown, the capital, has about 12,000 inhabitants. It is not an industrial centre, but is largely a city of homes where people have some leisure, and many of whom possess gardens of their own. The largest cities in the maritime provinces have but 50,000 inhabitants, and they (St. John and Halifax) are at present a day's journey distant. These, and other disadvantages, make even these limited centres impossible to the Prince Edward Island grower. But the cities of the maritime provinces are growing in size and increasing in number, and no doubt with their growth will come a corresponding improvement in transportation facilities. If there were in the maritime provinces a city of say, the size of Boston, within reasonable distance, it would simply revolutionize this industry in Prince Edward Island. A number of our maritime cities are bound to grow to large industrial centres in the not-distant future, and when this takes place it will transform agricultural methods on Prince Edward Island.

When these conditions prevail it will not only change our methods of agriculture, but will be of great advantage both economically and politically. When the Island is transformed into a province of vegetable and fruit gardens rather than one of oat and wheat fields, the average farm would be large enough at 25 acres. This would make possible an increase in the population by about 400 per cent. In other words, instead of having 103,000 population, with no vacant lands, we would have room for about 400,000 people by thus reducing the acreage of the farm. Such an increase would tend to attract manufacturing, and thus give corresponding growth to our towns and cities. It is easy to see that such an increase would at least help to restore our lost representation at Ottawa, and give us such an importance as to bring the tunnel, now a fond hope, in the realm of practical certainty. In the light of these facts a fruit and vegetable garden assumes a great and new significance.

OPPORTUNITY FOR CHERRY TRADE

Something could even now be done by a little improvement in transportation facilities, and a little more business enterprise. To illustrate we may refer to the Kentish cherry orchards which everywhere obtain here. The various varieties of sweet cherries do exceedingly well in different parts of Nova Scotia and are about the only ones cultivated. These cherries are largely sold in St. John and Halifax, and are put on the market about the middle of July. Their season is, however, short and frequently they fail almost entirely. Cherries of all kinds throughout New Brunswick, for some reason, are made conspicuous by their absence. On Prince Edward Island, however, the Kentish cherry is grown with the greatest of ease, and in splendid abundance. There is scarcely a farm, large or small, between East Point and North Cape, that has not a cherry orchard of some description. The crop very seldom fails; in good years, the yield is enormous, and the local demand is comparatively limited. These cherries come into maturity about a month later than the Nova Scotia crop, and being equally suitable for preserving as for table fruit, it will be seen that they should have a splendid demand in the cities of the ad-

joining provinces. But as a matter of fact I have never heard of a shipment of these cherries being made, and when the local demand is supplied the balance of the crop is either given away or left for the birds or, perchance, to rot upon the ground. It will readily be seen that the owner of a cherry orchard at the present time it at a distinct disadvantage, since any neighbors that may be invited to share the bounty of his crop invariably share the bounty of his table.

Since this cherry is firm and a good shipper, it seems strange that some attempt is not made to market them outside of the Island. In the vicinity of Summerside or Charlottetown, cherries could be picked in the morning and arrive in St. John or Halifax in time for delivery the same evening, under present arrangements. At greater distances from these centres, they would require to be picked the evening before; but, in any case, they should reach their destination in a prime condition. As they come on the market when there is generally a scarcity of small fruit they should meet a ready sale at good prices. Here it would seem is where a little enterprise might make profitable a wasted asset.

Large Fruit in England

At a fruit show in Evesham, England, last fall, the quality and size of the fruit shown was remarkable. From the *Birmingham Daily Mail* the following information was taken:

"Some idea of the size may be judged from the fact that six Belle de Jersey cooking pears turned the scale at no less than 11½ lbs., six Catillac pears weighed 10¼ lbs., six Pitmaston Duchess pears 9½ lbs., and six Doyenne du Comice pears 8¼ lbs. A similar number of Sterling Castle apples weighed 7½ lbs., six Lord Derbys 7 lbs., six Bram-

ley's seedlings 6½ lbs., and six Lane's Prince Alberts 5¾ lbs."

This shows what English fruit growers can do in the way of size. Three of these pears are grown in Ontario the Belle de Jersey, the Doyenne du Comice and the Pitmaston Duchess. The Pitmaston Duchess is not by any means common; but there are a few. THE CANADIAN HORTICULTURIST does not know of any one growing the Catillac in Canada; but the size of this and all the varieties mentioned is somewhat remarkable.

With the exception of Lane's Prince Albert, none of the apples have been grown in this country, and the Prince Albert is but little known here as yet. THE CANADIAN HORTICULTURIST (Nov. 1892), comments on specimens received from Cebourg, Ont., thus: "Lane's Prince Albert is a winter cooking apple, large, clear skin, marked like our Cayuga Red Streak."

If any growers in Canada have tested any of the varieties of pears or apples mentioned, they are requested to send brief reports of their characteristics and value for publication in THE CANADIAN HORTICULTURIST. The list was submitted to Mr. Linus Woolverton, Grimsby, Ont., author of "The Apple Growers' Guide," a work now being published and the following is his reply:

"The Belle de Jersey pear is quite distinct from the Louise Bonne de Jersey. The latter is an excellent dessert pear, quite to be recommended for culture in Canada; the former is another name for Uvedale's St. Germain, a very large cooking pear, sometimes weighing three pounds, and in use in England from January to April. It is not recommended for Ontario.

"The Comice is favorably reported by pear growers in Ontario, for it is of good quality, large size, ripens late in the autumn and keeps well after being fully ripe.

"The Catillac is a French pear of large size, and keeps through the winter, but the flesh is hard and only used for baking or stewing.

"The Pitmaston has been grown for some time in the writer's experimental grounds at Grimsby. It is large, of good quality, and of a fine clear yellow skin, free from blemishes and running fairly uniform in size. It appears to be a desirable export pear.

"Of the apples, Lane's Prince Albert is a large, handsome English apple, raised by H. Lane and first exhibited in 1857. Hogg in his Fruit Manual says it measures three and a half inches wide by three and a quarter high, is a clear pale yellow when ripe, often with broken streaks of bright crimson, and the flesh is tender, juicy and agreeable, so that it is considered an excellent cooking apple. The tree is a marvellous bearer in England.

"Lord Derby is another large English apple, which in that country sometimes reaches four inches in diameter. It is something like our big Gloria Mundi. It is a cooking apple only and keeps in England until about Christmas.

"Bramley's Seedling is also an English apple; it resembles Blenheim in appearance and is counted a valuable cooking apple up to January.

"On the whole, these English apples are not well adapted to the climatic conditions of our province. Some of them succeed well in British Columbia where the conditions seem to be more suitable to them."

In England it is proposed to hold an International Horticultural Exhibition in London in 1912. Preliminary arrangements have been made. Further details will be published later.

APPLE TREES

HARDY STOCK

We still have a good stock of the following varieties for sale at \$30 per 100

Bismark	Spy
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Duchess	Scarlet Pippin
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American Pomological Society

The American Pomological Society passed its 62d milestone at the time of its last meeting in St. Catharines, September, 1909. The formal meeting which brought this historical horticultural organization into existence was held in New York in September, 1848, although that meeting was preceded by a preliminary conference held by those interested in the organization some time previous in the city of Buffalo.

The report of its 31st biennial session is now going through press and will be distributed to its members in a few weeks.

In view of the many inquiries regarding the scope and purposes of this society, the secretary makes the following statement: The society is non-sectional, and is as comprehensive in its aims as the broadest interests of fruit growing demand. Its purpose is to co-ordinate, unify and further the interests of the various horticultural societies by stimulating the best methods of culture, popularizing scientific advances, and urging the planting of varieties characterized by high quality.

The society has no limitations in regard to membership. It is open to the amateur as well as to the commercial grower of fruits, to the nurseryman as well as to the orchardist. The fees are light, being two dollars for the biennial two-year period. The reports are exceedingly valuable as well to the teacher as to the practical fruit grower.

Life membership in the society is of two kinds: To institutions, it is secured for a 30-year period on payment of a 20-dollar fee. Individuals may secure life membership on payment of the same fee. In addition to the forthcoming reports, the society gives each life member, on entering, copies

of as many of the back volumes of the Transaction as are now available. These are becoming rare and valuable.

The society is of special interest to the fruit breeder. It promotes development of improved varieties by offering prizes for distinctly worthy new kinds. To this end it maintains a committee whose duty it is to examine and report on new originations and make such recommendations as in their judgment are appropriate. One of the earlier presidents of the society, the late Marshall P. Wilder, left a small fund which is used to provide silver and bronze medals to be awarded to originators of worthy new fruits.

The officers of the society are: Pres., L. A. Goodman, Kansas City, Mo.; sec., John Craig, Ithaca, N. Y.; treas., L. R. Taft, East Lansing, Mich.; executive committee, C. L. Watrous, Des Moines, Ia.; W. C. Barry, Rochester, N. Y.; C. W. Garfield, Grand Rapids, Mich.; G. L. Taber, Glen St Mary, Fla.; W. T. Macoun, Ottawa, Ont.

Horticulture in Toronto

The Toronto Horticultural Society is doing active work this year in interesting the residents of the city in the improvement of their home grounds. Action has been taken also in the work of improving certain streets in unimproved parts of the city. The response of the citizens shows that the society's efforts are bearing fruit. Through bringing the matter of civic improvement directly to the attention of a number of leading and wealthy citizens, Mr. W. G. MacKendrick, one of the vice-presidents of the society, has been successful in augmenting the funds of the society by personal subscriptions, which are being applied to the work of street improvement. The chairman of the committee directly in charge of

this work is Mr. Roderick Cameron. The scheme of improvement is as follows:

The committee selects the blocks where they think the prizes would be appreciated and where there is a chance for considerable improvement to be made, endeavoring to scatter them through the city. A first prize of \$3, second of \$2, third of \$1, is offered in each block for the best climbing roses; the same prizes for the best Virginia creeper; the same prizes for the best flower bed; and the society bronze medal for the best general effect in each block.

Chairman Cameron has appointed a practical gardener to take charge of each block. They will meet the citizens on these blocks and endeavor to work up a desire to improve their premises, and will tell them and show them how it can be done.

As the judge for each set of prizes will be confined to one block, and to specific articles in that block, it is anticipated that the judges will not have much difficulty in reaching satisfactory judgment.

Three prizes are being given in one block, consisting of \$12, \$8 and \$5, first, second and third prizes, for the best lattice work or chicken line wire fence between two properties covered with climbing animals, vines or shrubs; by drawing attention to these matters it is hoped in time to make an improvement in the hideous back yard fences which disfigure the city.

The Walkerville (Ont.) Horticultural Society is planting a privet hedge around the Pere Marquette grounds, and is putting four or five large beds for flowers in conspicuous places.

I greatly appreciate your interesting paper—THE CANADIAN HORTICULTURIST.—A. F. Figerstedt, Korla, Finland.

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Effective Indoors and Outdoors

The practicability of spraying, compared to fumigating or vaporizing, is being more generally recognized than heretofore among those engaged in floriculture and horticulture.

Spraying, when operated on scientific lines, is proving the most economical method of combating insect pests. Fumigation requires the filling of the house. Spraying requires application to that portion of the house only where the insects make their appearance.

Fumigation is not beneficial to flower or foliage. Spraying with Aphine does not affect them in the least; in fact, it invigorates the plants.

APHINE is used at various strengths as follows:

For Green, Black and White Fly, 1 part Aphine to 40 parts water.

For Thrips, Red Spider, Slugs and Ants, 1 part Aphine to 25 parts water.

For Mealy Bug, White and Brown Scale 1 part Aphine to 12 to 15 parts water.

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As good for man as for beast.

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Summer Spraying for Apples

John P. Stewart, State College, Pa.

Using a combined insecticide and Bordeaux, either lead arsenate and Bordeaux, 2-4-4-40; or lime-sulphur, 1.01, with two pints of arsenite of lime per 40 gal. (For preparation and dilution of lime-sulphur, and making of the arsenite, see Pa. Expt. Sta. Bul. 92 or 99.) Instead of the arsenite of lime, two pounds each of lead arsenate and lime may be used in the diluted lime-sulphur, making the addition as late as practicable. The lime-sulphur preparation is preferable on varieties subject to russeting and other spray-injury by Bordeaux.

If any of the enemies indicated are unlikely to be present, the corresponding sprays may of course be omitted.

(1) When blossoms are just showing pink or slightly before. For apple and pear scab, canker worm and bud moth.

(2) Within 8 or 10 days after blossoms fall. May begin when petals are two-thirds off. The most important spray. For scab and codling moth or apple worm.

(3) About three weeks after blossoms fall. For codling moth and apple blotch

(4, 5 and 6) If orchard is endangered by bitter rot or apple blotch, spray three times with Bordeaux at intervals of about three weeks, beginning 8 or 9 weeks after petals fall.

(Other Sprays): To be made where needed if not sufficiently provided for by those above.

(a) For fungous fruit-spot of Jonathan, etc., Bordeaux or lime-sulphur, as above, about July 1.

(b) For second brood of codling moth, and for the foliage-eating caterpillars of late summer; lead arsenate and lime (2-2-40) about Aug. 1.

The Georgian Bay District

An excellent quality of apples can be grown in the Georgian Bay district of Ontario, but the fruit industry is not receiving the attention that should be given to it by the growers. There are far too many neglected orchards in which spraying is never practised and pruning is very seldom done. A large number of orchards are in sod and are not manured or given any special attention. There are a number of reasons for this state of affairs, the chief one probably being that the farmer looks on his fruit as a side issue and only devotes such time to it as he finds convenient after his other work is all done. If it can be proved to the farmer that his orchard is one of the best paying propositions on his place, will he then take good care of it?

In order to test this matter, Mr. I. P. Metcalf, the district representative of the Department of Agriculture, with the co-operation of the fruit branch of the Department of Agriculture at Toronto, has taken over the management of six orchards in as many representative parts of the township of Nottawasaga. These orchards are to be manured, plowed and cultivated by their owners until just before haying, when a cover-crop is to be sown. Mr. W. F. Kydd of Simcoe has been engaged to look after the pruning and spraying of these orchards. An effort is to be made to keep an accurate account of the actual expenses and also of the value of the crop so that it can be figured out just how much money was made by giving the orchard the best of treatment. If a good profit is shown by this management it is believed that the farmers will take the time (at the right time) to do the necessary work.

THE CANADIAN HORTICULTURIST is too good to miss.—F. S. Carr, Edmonton, Alta.

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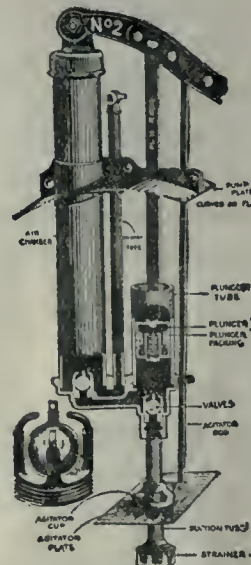
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117A

The Common Crab Apple

From "The Apples of New York" by Beach

The crab apples which we cultivate for their fruit are for the most part hybrids between the apple, *Pyrus malus*, and the primitive Siberian crab, or berry crab, called by Linnaeus *Pyrus baccata*. This species, *baccata*, in its pure forms, is readily distinguished from the apple, *P. malus*. The calyx is eventually deciduous, instead of persistent. The leaves are firm, smooth, bright green and are borne on long, slender hard leaf-stalks. The twigs are smooth and slender. The ripe fruit is brilliant in color, red or yellow, does not get mellow, varies from three-eighths to three-fourths of an inch in diameter, and is borne on long, slender stalks. The flowers are large and usually pure white. In some of the hybrids, as for example, Martha and Currant, the calyx is on some fruits deciduous, or partly so, while on other fruits borne on the same tree, the entire calyx may be persistent; also the fruit is large and it is clear that other characters which they show are derived wholly or in part from either *baccata* on the one hand or from *malus* on the other.

It is well to remark that the name crab apple is not applied exclusively to the Siberian crabs and their hybrids, but is popularly used to designate indiscriminately small apples whether of the *malus* species or of some other species, but the term Siberian crab is properly used to indicate the *baccata* species and its kin.

Box-Packed Apples in England

M. Musseo, Canadian Trade Commissioner, Leeds

One of the most important changes which the past season's trade in Canadian apples has brought to light in this part of England is the greatly improved popularity of box-packed apples. Many merchants now declare themselves to be whole-heartedly in favour of this system of packing apples in bushel boxes.

Not only are these boxes, they say, more conveniently stored on the ship, but they are easier to handle in their warehouses, and meet a long felt want in supplying the demands of small retailers who cannot dispose quickly of the larger amount of apples contained in the ordinary barrel. Although, of course, the retail price of the apples is slightly higher than that charged for fruit in barrels, yet the attractiveness of the packing and the selectness of the apples themselves is declared to be usually found sufficient to counterbalance any disadvantage in this respect.—Extract from Weekly Report of the Department of Trade and Commerce, Ottawa.

Spruce Gall-Louse

In many parts of Ontario spruce trees and hedges are infested with the spruce gall-louse. The usual remedy advocated for its control is kerosene emulsion. That the lime-sulphur wash may prove to be another valuable remedy is intimated in the following extract from bulletin No. 177, recently issued by the Ontario Agricultural College:

"So many enquiries have come to the department of entomology for the best remedy for the spruce gall-louse that it seems desirable to mention here that contrary to writers' expectation one thorough application of the home-boiled wash applied the first week in May exterminated these insects on Mr. J. W. Smith's beautiful spruce hedge at Winona. The date above given or the last week in April is the proper time to do the spraying."

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Illustrated catalogue of Sprayers, Seeders, Planters, Drills, Wagon Boxes, etc., sent free on application. The Eureka Planter Co., Limited, Woodstock, Ont.

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Main St. West, Hamilton, Ont.
Mention The Canadian Horticulturist when writing

Arsenite of Lime

L. Caeser, O.A.C., Guelph

Prof. W. M. Scott of the Bureau of Plant Industry, Washington, D. C., has reported that in his experiments in Arkansas arsenite of lime used with lime-sulphur burned apple foliage severely. In my experiments on apples, pears and potatoes the two substances were used together with safety. Prof. J. P. Stewart of Pennsylvania also found them safe. Professor Scott, however, is considered a careful investigator; so, it is just possible that different weather conditions this year in Ontario might cause this spray mixture to be injurious.

It seems wise, therefore, to advise the fruit growers of the province not to use the arsenite of lime in any but an experimental way this year and to wait for another season until the question will have been definitely settled. Meantime investigators agree that arsenate of lead, two pounds to forty gallons, is the proper poison to use with lime-sulphur, as it is both effective and safe.

Cold Storage of Apples

J. A. Ruddick, Cold Storage Commissioner, Ottawa

The experiments in the storage of apples which this branch of the department has been conducting the past winter, by authority of the minister of agriculture, has shown conclusively the possibility of keeping apples in a sound condition and without waste if placed in cold storage as soon as taken from the tree, no matter what the conditions are at harvest time. Seven earloads of apples were purchased in the orchards last fall and were removed to cold storage immediately after being picked. They were carried at a temperature of 30 to 32 degrees all winter, and in April at London, St.

John and Montreal we had Baldwins, Greenings and Spys in perfect condition, crisp and juicy, showing no appreciable waste. Apples that were packed in barrels in the orchards last fall were shipped in April without re-packing. This saving will pay the extra cost of cold storage.

Cold storage of apples is not always so successful, for the reason that they are generally allowed to remain too long after picking before they are put in storage. The damage is usually done during the first week or two after picking. There is no use of depending on cold storage to preserve over-mature, bruised or imperfect fruit. Full details of these experiments will be published in bulletin form as soon as the final results are available.—From Census and Statistics Monthly for April.

THE CANADIAN HORTICULTURIST is improving with every issue. There has been marked improvement in the past year.—J. A. Moore, Queens Co., P. E. I.

I should have sent my renewal subscription to THE CANADIAN HORTICULTURIST sooner, but I have been very busy. I cannot afford to be without your excellent publication.—Sam L. Long, Yale-Caribou, B. C.

"Weeds and How to Eradicate Them" is a question of much concern to farmers, fruit growers and gardeners everywhere. An excellent little book bearing this title was written by Prof. Thos. Shaw when he was professor of agriculture at the Ontario Agricultural College. It treats the subject in a thoroughly practical manner. Bound in cloth and containing over 200 pages, it makes a neat and valuable addition to any book shelf. Copies may be had from the Webb Publishing Co., St. Paul, Minn.

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(FOR CONTROL OF ALL LEAF-EATING INSECTS)

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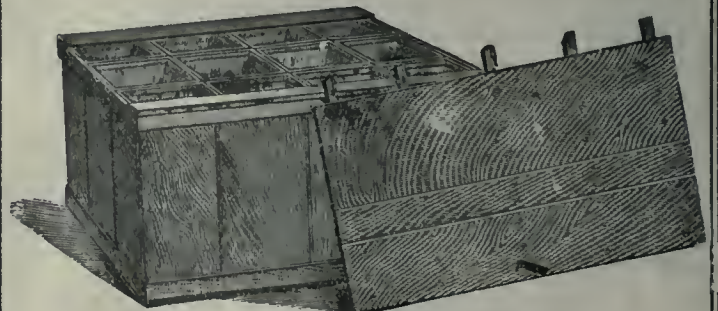
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NOTES FROM THE PROVINCES

British Columbia

R. M. Winslow

The conference of the British Columbia Fruit Growers' Association held at Kamloops on April 13 and 14 was well represented by fruit growers from all over the province and in addition was well attended by transportation officials connected with the C. P. R. and Dominion Express, also by a number of members of the northwest fruit jobbing houses, who came for the purpose of getting acquainted with the fruit growers of the province.

Aside from the transportation and marketing discussions, the chief business of the conference was the re-organization of the British Columbia Fruit Growers' Association. This organization as reconstituted has for its object the spreading of information with regard to the marketing of British Columbia fruit. The general opinion of all who have investigated the British Columbia fruit industry, as was evidenced at the convention, was that we needed principally not only to grow more fruit, but to procure a more uniform grade of packing, and consequently a higher quality of fruit. There is also greater need of co-operation. It will be the aim of the provincial association to assist the growers in every way, by giving information with regard to proper methods of harvesting, packing, co-operation and the marketing of our fruit.

The association will publish crop reports throughout the summer, detailing information with regard to British Columbia, Oregon, Washington and Ontario crops. Shippers and associations affiliated with the provincial association will receive weekly reports on prices being received in northwest and coast city markets. A price list of supplies available for fruit growers has been published, and supplies obtained at these

prices will effect a considerable saving for members of the association.

The association is organized so as to permit of the affiliation of local fruit growers' associations throughout the province, and it is one of the duties of the association to encourage these local associations to make the best success of the marketing of their fruit. Members of the local associations can secure all the advantages of membership in the central association at a lower cost. Local associations through the province are asked to co-operate with the provincial association to make the marketing of our fruit the greatest possible success. The principal officers elected were: R. M. Palmer, president; J. C. Metcalfe, market commissioner, vice-president. These, with R. H. Agur of Summerland and W. C. Ricardo of Vernon, the Minister and Deputy Minister of Agriculture, constitute the executive. The secretary is R. M. Winslow, Victoria.

The association will hold an annual conference in January next, along the lines of the one at Kamloops. All fruit growers of the province are cordially invited to become members of this association.

Okanagan Valley, B. C.

A meeting of the Vernon Small Fruit Growers' Association was held on May 2 at the house of the secretary, Mr. E. Henderson, Coldstream. It was decided by the meeting that the handling of this season's small fruit crop be again put through a wholesale house. The question of hauling the fruit to the packing house was left in the hands of the executive to deal with.

The following officers were elected for this year: Pres., A. F. Venables; sec., E. Henderson; executive committee, W. R. Grieve, E. A. Davey and W. S. Foggo.

Growers of small fruits in Vernon and vi-

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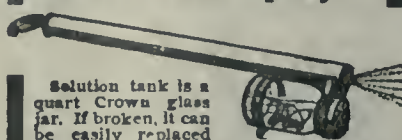
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Vancouver Island

W. J. L. Hamilton

Referring to Mr. J. Spencer's article on pruning in the March issue of THE CANADIAN HORTICULTURIST, I might mention that I find it pays to prune twice a year. In the spring, just before growth starts, and just before the last application of winter strength lime-sulphur spray, I prune to form the head of the tree; that is, I cut back to the buds I want to form the leading shoots. Again, about June (generally towards the end) I prune for the formation of fruit-bearing spurs.

The winter pruning, which generally means cutting back about one-third of the leading shoots, starts into growth all the buds that are left. Of these the leading shoots are left and the other shoots checked by pinching off with the finger and thumb at about the fourth or fifth bud of the new shoot. By doing this we tend to produce fruit-bearing spurs, which are really abortive branches. I am speaking of apple trees.

I believe in a low open head, even if we don't sell the apples that drop, which will not keep. There is no trouble in cultivating around low-headed trees if a side draft cultivator is used, and we can gather the fruit cheaper and so make more profit. Conditions, probably, vary much from province to province.

A Progressive District

W. G. Horne, Clarkson, Ont.

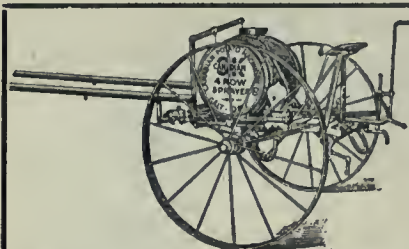
Clarkson is one of the best fruit and vegetable districts in Canada. Thousands of packages are shipped from this station each year, chiefly strawberries and raspberries. Clarkson has the reputation of growing as fine strawberries as can be produced anywhere in America. A large percentage of the small fruit is sold on the platform at station to buyers and shipped to different points in Ontario and Montreal and Toronto.

In vegetables, potatoes are the most extensively grown. Some growers plant as many as 20 acres. Within a mile and a half circle, some 400 to 500 acres are grown averaging 150 bags to the acre or more. A large amount of sweet corn is grown each year. About 10 acres of onions yielding an average of about 400 bags an acre are planted. Nearly all kinds of vegetables are grown on a greater or less scale and the most of them are teamed into Toronto.

Manure is a large factor in producing both fruit and vegetables. Clarkson expends each year about \$5,000 for manure brought in in carload lots, principally from Toronto. Clarkson has quite a strong branch of the Ontario Fruit Growers' Association, numbering some 70 members who paid in cash for fruit packages alone last season some \$10,000, through tender and contract.

THE CANADIAN HORTICULTURIST is very rapidly improving. I feel that I cannot do without its very helpful articles.—Arthur J. Tufford, Lincoln Co., Ont.

A booklet entitled "Fruit Tree Sprays and How to Use Them" has been received at this office from the Niagara Brand Spray Co., Burlington, Ont. It contains up-to-date and reliable information on spray mixtures and spraying. Fruit growers in all parts of Canada will find in it much valuable information. Copies will be furnished on request to the address above-mentioned.

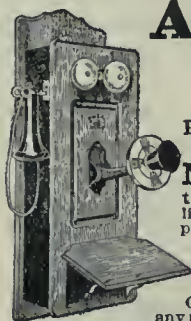


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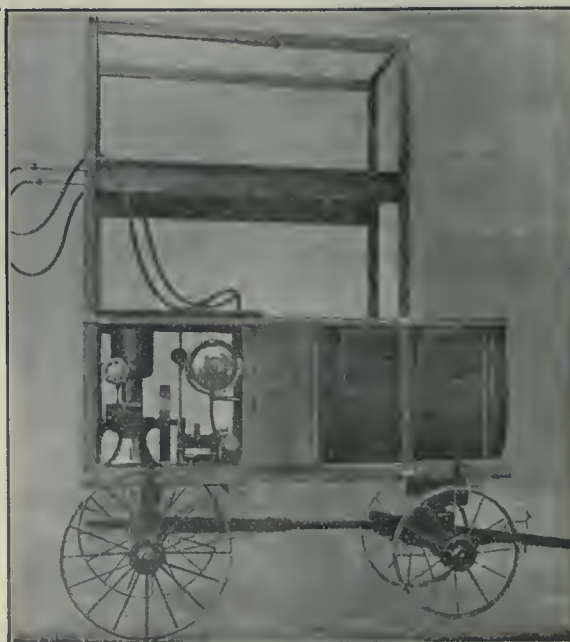
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Grape Refuse from Wine

F. T. Shnutt, M. A., Chemist, C. E. F., Ottawa

This waste product consists essentially of the skins and seeds of grapes used in the manufacture of wine. From such information as we can gather it has no commercial value, but can be obtained gratis by farmers or others on application at the wine factory. At the request of several fruit growers in the Niagara district, where it has been used of late years to some extent, we have determined its composition.

Two samples were forwarded, collected some weeks apart at the same factory, and their moisture-content on arrival at the laboratory was 54.59 per cent. and 66.20 per cent. respectively. The samples were mixed and an analysis made, the results being calculated on the basis of 60 per cent. water.

ANALYSIS OF GRAPE REFUSE.

	Per Cent.
Water	60.00
Organic matter	33.60
Mineral matter or ash	1.40
	100.00

	Per cent.	Per ton.
		Lbs.
Nitrogen .....	.77	15.4
Phosphoric acid .....	.20	4.0
Potash .....	.36	7.2

The amounts of the fertilizing constituents are by no means large, and consequently the profitable use of this refuse would be confined to districts in the immediate vicinity of wine factories. Much of its plant food is, of course, in the grape seeds, and this naturally would not become available until they have at least partially decomposed.

It is difficult to say how long such seeds might remain in the soil intact when the crude material is applied to the soil, but it is evident that a previous composting would be advantageous in bringing about a liberation of the fertilizing elements. If wood ashes were used in the compost heap, the resulting material would be the richer in potash, and any acidity developing in the fermentation of the refuse corrected.—Extract from 1908 report of Chemical Division, Dominion Experimental Farms.

The White Grub in Lawns

A grub that often is troublesome in lawns is the larva of a robust brown beetle, commonly spoken of as a "June Bug," or May beetle, the big, clumsy fellow which buzzes into open windows and about the lighted lamp in early summer. This insect belongs to the genus *Lachnosterna*, and the species we have commonly with us appears to be pretty evenly divided between *fusca* and *rugosa*. Not only do the young of these beetles work havoc on lawns, but the adults are active at night, they work "while you sleep," feeding upon the leaves of fruit and shade trees, and capable, when very numerous, of stripping the trees of their foliage. Eggs are laid amongst the roots of grass, and the young grubs when hatched begin to feed upon the rootlets, sometimes killing patches many square feet in extent, and leaving the grass brown and dead, easily separated from the ground below; in fact, it can be lifted and rolled up with the hands. It takes two years, or longer, it is believed, for this larva or grub to become mature, hence a lawn laid waste in 1908 would not, if all the grubs which caused the injury were full grown at that time, show any further injury from this source until 1910. In other words, this year's (1908) grubs would change to beetles next



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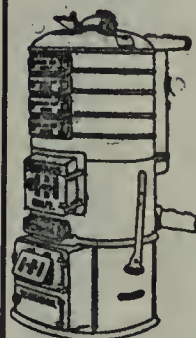
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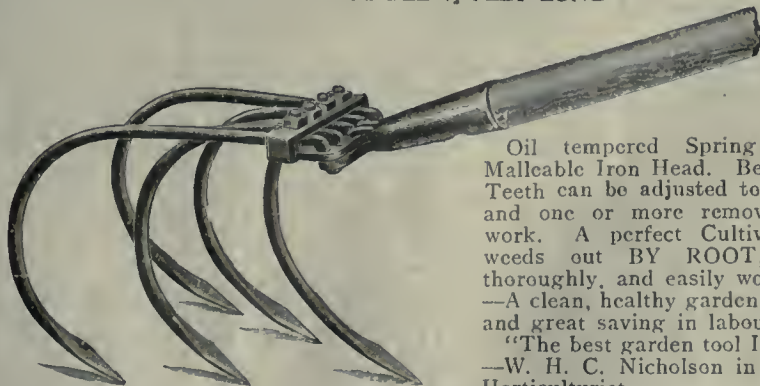
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—W. H. C. Nicholson in May Canadian Horticulturist.

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spring, when mating and egg-laying would take place; the young hatching from eggs laid in the spring of 1909 would not be large enough to work appreciable injury until the summer of 1910.

To be effective, any treatment against this pest must be begun as soon as the first signs of injury to the lawn are observed. To wait until the grass is brown and dead is like shutting the door after the horse is stolen. The most acceptable treatment at this date appears to consist of copious watering of the lawn where possible, accompanied by the use of some artificial fertilizer, like nitrate of soda (from 250 to 350 pounds to the acre), thus enabling the lawn by vigorous growth to keep ahead of the grub. One should at least resort in each case to abundant watering when possible, even though the fertilizer is not applied. J. B. Smith, state entomologist of New Jersey, claims to have obtained relief by the liberal use of ground tobacco stems scattered broadcast and liberally over an affected lawn, followed by copious watering. He states that grubs disappeared after this treatment. This suggests, naturally, the frequent sprinkling of lawns with a tobacco decoction. Evidently, this would have to be quite strong and used generously. We have killed them by the use of bisulphide of carbon without injuring the grass, but the process is a slow one and impracticable where large areas are involved. Clover is not seriously affected by this insect. After the lawn is dead in patches nothing remains for the owner to do but to re-sod or re-seed.

Robins greatly aid in the extermination of the white grub, and may frequently be seen pulling them from under the dead grass. They should be encouraged in this good work. Moles and shrews eat them and we believe that skunks are also fond of them. If the grubs should be carefully

removed and destroyed when brownish patches are first observed in the lawn, their injurious work is at once stopped. They will be found just below the sod if they are responsible for its condition.—From Bull. 112, Agricultural Experiment Station, St. Paul, Minn.

Quebec Pomological Society

At a meeting of the Pomological and Fruit Growing Society of the Province of Quebec, held at Macdonald College a year ago, Mr. R. Brodie, of Westmount, who was president at the time, gave an interesting short history of this organization and of its parent society, the Montreal Horticultural Society.

"Previous to 1877," remarked Mr. Brodie, "the Montreal Agricultural and Horticultural Society existed, having each year its county exhibition, but unfortunately it published no report of its proceedings. In 1877, the provincial Act Relating to Horticultural

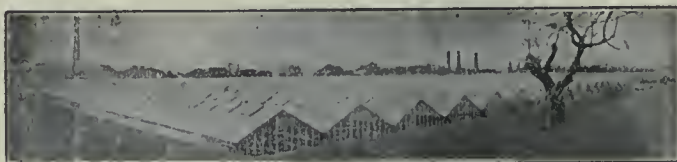
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Societies, was amended in such a way as to give the society an annual government grant, and also a new name, which henceforth became the "Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec."

"This change was for the better; it gave renewed vigor into what had already become an active and enterprising society. Annual exhibitions were held, reports were published and the society occupied a prominent position all over the Dominion and also in the New England states. It was in 1878 that the society opened its prize-list for the best county collection of apples, which added greatly to the display of apples at the exhibition.

"The present meeting is not the first time that prizes have been offered for the best winter seedling apples. In 1883, the society secured the help of the late Rev. R. Hamilton and others, who collected a large number of choice seedling apples. The late Chas. Gibb, Dr. Horkins, of Newport, Vt., Mr. Webster, of South Northfield, Vt., and myself were appointed a committee to examine and select the kinds that were worth retaining, to test their keeping and other qualities. We kept about 75 varieties. These were put in the basement of the warehouse belonging to the late Mr. Wm. Evans,

seedsman. Unfortunately, the river rose and flooded the basement, destroying in a few hours what took months of hard work to accumulate. We hope that our present attempt to secure, amongst seedling apples, something akin to what the Baldwin apple is in Ontario and western New York, will meet with better success.

"The society was greatly indebted to the late Henry S. Evans for a large measure of its prosperity; for 13 years, he was its secretary. The society had also on its board of directors, the late Chas. Gibb, of Abbotsford, who proved to be its leading spirit. He was such an enthusiast in horticulture that he, accompanied by Prof. J. L. Budd, of Ames College, Iowa, left in June, 1852, for Russia in search of hard varieties of fruit. He returned from Russia in February, 1883, bringing with him a lot of valuable information and hardy varieties of fruit that have been a great benefit to the colder parts of our country. On his way home from India, he took dangerously ill, and died at Cairo, Egypt. By his death, the society, with which he was so long connected, and the whole Dominion at large, suffered a severe loss.

"It was in the winter of 1892, at Abbotsford," concluded the speaker, "that the Pomological and Fruit Growing Society of the Province of Quebec was formed. It was thought we could do greater provincial work, which has since proved true. We have had meetings north, south, east, and west of our province, spreading the leaven of fruit growing and horticulture in general, and now we are beginning to see the results—more orchards are being planted. We have better appliances to combat fungous and insect enemies, better means of transportation, better markets and better prices, for we can grow the best apples in the world."

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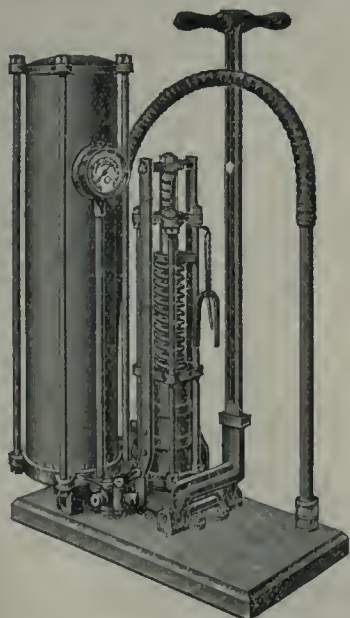
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IF YOU WANT to buy a good fruit farm, read the advertisements in this column. If you have a fruit farm you wish to sell, tell our readers about it in The Canadian Horticulturist.

LATEST—BEST—British Columbia Fruit District —Kaleden in South Okanagan—4 miles lake frontage—Apricot and Peach Belt; high priced high grade varieties of apples, European grapes. Decomposed lava ash soil; reservoir gravity pipe water system to every lot. Finest domestic water. Very long summer season; early spring; dry climate. Illustrated Booklet Free. Send for it to-day.—T. G. Wanless, Kaleden, B. C.

SALMON ARM, Shuswap Lake, B. C., has the finest fruit and dairy land in B. C. No irrigation necessary, mild winters, moderate summers; no blizzards, or high winds; delightful climate; enormous yields of fruit, vegetables and hay; good fishing; fine boating amidst the most beautiful scenery, and the Salmon Arm fruit has realized 25 cents per box more than other fruit in B. C. Prices of land moderate, and terms to suit. Apply to F. O. Haydock, Salmon Arm, B. C.

GROW APPLES AND GROW RICH — 10 acres in British Columbia's finest fruit growing district will support a family in comfort. Prize fruit, enormous crops, high prices, big profits—\$200 to \$500 per acre. Established settlement, no isolation, plenty good neighbors, best transportation, good markets, grand scenery, hunting, fishing, shooting; school, church, stores, post office, hotel; daily trains. Splendid climate; fine summers, mild winters; high winds and low temperatures unknown. Prices right. Easy terms. Proofs, plans, particulars.—Fruitvale Limited, Land Dept., Nelson, B. C.

Tillage vs. Sod Mulch

To determine whether the apple thrives better under tillage or in sod, the New York Experiment Stations at Geneva is conducting two experiments. A preliminary report on one of these is given in Bulletin No. 314, of the station. The method of tillage chosen was to plow in the spring, cultivate until late July, and follow with a cover-crop. The sod method chosen was that known as the sod-mulch method, in which the grass is cut as a mulch. The results show that tillage seems to be better than sod for the following reasons:

"The results of 120 moisture determinations in the orchard (where the tests were conducted) show the differences in tree growth and crop in the two plats of this experiment are mainly due to differences in moisture, the tilled plat having most moisture.

"As a consequence of the reduced water supply in the sod plat, there is a reduced food supply; for it is only through the medium of free water that plants can take in food. Analyses show that the differences between the actual amounts of plant food in the two plats are very small.

"Analyses show that there is more humus in the tilled plat than in the sod plat, contradicting the oft made assertion that the tillage method of managing an orchard 'burns out the humus.'

"At a depth of six inches, the tilled soil is 1.1 degrees warmer in the morning and 1.7 degrees at night, than the sod land; at 12 inches the tilled soil is 2.3 degrees warmer in the morning and 1.8 degrees in the evening.

"We are justified, without the presentation of specific data, in saying that a tilled soil is better aerated than sodded land.

"Soil investigators are well agreed that beneficial micro-organisms are found in greater numbers in a cultivated soil than in other soils.

"The following application of the results of this experiment may be made:

"Nearly all the plants which minister to the needs of man are improved by tillage; the apple does not seem to be an exception.

"Results as positive as in this experiment can be made very comprehensive; they should apply to all varieties of apples and to nearly all soils and locations.

"The experiment does not show that apples cannot be grown in sod; it suggests, however, that apples thrive in sod, not because of the sod, but in spite of it.

"While moisture is by no means the only factor to be considered in the controversy over the sod and tillage methods of managements, it appears to be the chief one.

"There is nothing in this experiment to indicate that trees will become adapted to grass. The sodded trees began to show ill-effects the first year the orchard was laid down to grass and each succeeding year has seen greater injury."

COMING EVENTS

Under this heading, notices of forthcoming exhibitions and meetings of horticultural importance will be published. Send the information as long in advance as possible.

Calgary, Alberta Provincial... June 30-July 7
Charlottetown, P. E. I. Provincial... Sept. 20-24
Halifax, N. S., Provincial... Sept. 28-Oct. 6
London, Eng., Royal Horticultural Show (for colonial-grown fruit and vegetables) ... Dec. 1-3
London, Ont., Western Fair... Sept. 9-17
New Westminster, B. C., Provincial... Oct. 4-8
Ottawa, Central Canada... Sept. 9-17
Regina, Sask., Provincial... Aug. 2-5
Sherbrooke, Quebec Pomological Society (Summer Meeting) ... Aug. 30-Sept. 1
Sherbrooke, Que., Great Eastern... Sept. 3
St. John, N. B., Dominion Exhibition... Sept. 5-15
Toronto, Canadian National... Aug. 27-Sept. 12
Toronto, Ontario Horticultural... Nov. 15-19
Vancouver ... Aug. 15-20
Victoria, B. C. ... Sept. 27-Oct. 1
Winnipeg, Industrial ... July 13-23.

A very complete bulletin (No. 143) on "The Codling Moth," has been issued by the Agricultural Experiment Station at Durham, N. H. Among the subdivisions are life history, experiments in spraying, directions for spraying, cost of spraying and co-operative spraying.

The plans for Welland Park at Welland, Ont., that were submitted by Brown Brothers Company, Nurserymen, were accepted and the planting was done this spring. The plan provided for paths, lawn, shade trees and shrubbery beds. Brown Brothers Company supplied all the trees and shrubs for the work. They are adepts at landscape planning, and their nursery stock is the equal of any grown on the continent.

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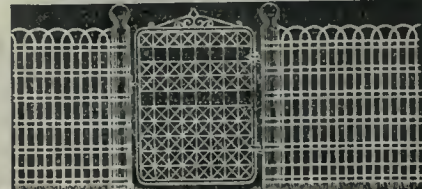
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The Canadian Horticulturist

Vol. XXXIII

JULY, 1910

No. 7

Great Possibilities of Ontario Apple Orchards

THERE are neglected orchards on thousands of farms in Ontario, the owners of which have no conception of their value. These orchards range in size from one to twenty acres. Many of them are stocked with excellent varieties of trees. For the most part they are unpruned, unsprayed, uncultivated. Did their owners realize the returns that might be obtained from their orchards they would be quick to give them the slight care and attention that is all that is required to make their value apparent. As it is they do not appreciate their possibilities and consequently most of these orchards could be purchased for only a few dollars an acre. Money invested in some of these orchards, with a little care and attention might soon be doubled.

The best of these orchards are located in the counties adjoining the great lakes. There are hundreds of them in the county of Prince Edward which is exceptionally well adapted for the growing of fruit. Others may be found in counties all along the shores of Lake Ontario, Lake Erie, Lake Huron, and the Georgian Bay, as well as in some counties situated further inland.

There are sections where an awakening has taken place. For the most part these are where co-operative fruit growers' associations have been formed, as at Trenton, Newcastle, Oshawa, Simcoe, Chatham, Forest, Walkerton, Meaford, and elsewhere. In some of these districts there are fruit growers who now are making \$100 and \$200 an acre and more out of apple orchards that a few years ago they were planning to destroy.

REASONS FOR NEGLECT

Most of these neglected orchards were planted many years ago. They proved profitable for some years. Later, however, their output became greater than the local markets could absorb. At that time the great markets in Western Canada had not been created, and the population of the towns and cities of Ontario was much smaller than it is now. The co-operative handling of fruit was practically unknown. The growers were forced to sell their crops to apple buyers. If they obtained 75cts. to \$1.00 a bbl. they generally considered that they did well. These conditions proved discouraging. In the course of a few years thousands of these orchards

were neglected. Most of them are still in that condition.

CHANGED CONDITIONS

Within the past five or six years the general situation has changed completely. Over 1,000,000 settlers have come into Canada. Important consuming centres have sprung up all over the great West, and lately in Northern Ontario, as though by magic. The population of the cities and towns has increased greatly. Together with this the co-operative system of handling the apple crop has been introduced, and has been proved to be practical and profitable. About forty co-operative apple growers' associations now save for their members the

A Bond of Union

It is well for the horticultural interests of Canada that we have such a publication as THE CANADIAN HORTICULTURIST. It is the bond that unites those interested in horticulture all over the Dominion, and thus it is a factor in building up Canada. We should all support it.—Thos. Delworth, Weston, Ont., President, Ontario Vegetable Growers' Association.

proceeds from their fruit that formerly were divided among two or three middlemen. By means of their warehouses they are able to store their apples, and thus to sell them when the market is the most favorable. Thus to-day there are many hundreds of apple growers in Ontario who receive two and three dollars a barrel for their apples, and who thus are making large profits out of their orchards. And still there are thousands of farmers in the province who do not realize what the changes that have taken place mean to them, and whose orchards in consequence are an eyesore to them, and even in some cases a source of loss.

THE GEORGIAN BAY DISTRICT

The Georgian Bay district is one in which hundreds of neglected orchards exist. In Nottawasaga township, Simcoe county, however, such an awakening is taking place as is needed in the other fruit sections of the province. There is a prospect that within the next few years it will become general throughout Ontario.

The section is well adapted to the growth of apple trees and many of the semi-hardy fruit trees. The so-called mountains—a high ridge of land running along the shore near the Bay, which is a continuation of the Niagara escarpment—together with the tempering influence of the Georgian Bay to the north, renders the climate of the district most favorable for fruit. Fruit trees do remarkably well, and so far as apple trees are concerned, it would be difficult to find a place that by nature was better adapted for their growth.

START OF THE MOVEMENT

Last year, the Fruit Branch of the Ontario Department of Agriculture interested itself in the district. During the summer, considerable data relative to the actual conditions of the orchards was gathered.

There is located at Collingwood one of the Branch Offices of the Ontario Department of Agriculture. Its representative, I. F. Metcalf, B.S.A., realized that the farmers of the section did not appreciate their opportunities. Acting on his knowledge of the district, along with that obtained from the orchard survey work, he planned to conduct some demonstration orchards this year in the hope of improving the orchards generally. His efforts are meeting with distinct success.

The start was made last spring in the township of Nottawasaga. Six orchards that were in a badly neglected state were selected at favorable points. Having gained the consent of their owners, these were taken over by the Department for a period of two years to be used for demonstration purposes. The orchards are located on the farms of the following men: W. Hamilton, Collingwood; W. J. Ovens, Duntroon; C. Campbell, Stayner; R. Steele, Cashtown; S. Blackburn, Creemore; John Osborne, Dunedin. These orchards are representative of orchards in the district. The trees were pruned, scraped, and sprayed. All of these orchards had previously been in sod, as are most of the orchards in the district. They were plowed and have since been cultivated.

The owners of the orchards assisted with the work of pruning and spraying, and did the manuring, plowing, and cultivating, as directed. The farmers who owned the orchards will reap the full



Before Pruning, No. 1

A tree in Mr. Colin Campbell's orchard, Georgian Bay District, before pruning.

benefit of the work. The Department is keeping an account of all labor and expenditures. The ultimate results will be compared with those obtained in past years in order to demonstrate the profit that may be gained by giving care to these orchards.

GREAT RESULTS ALREADY

These six demonstration orchards were inspected by a representative of The Canadian Horticulturist during the second week in June. The transformations that have been worked already are remarkable. They have aroused the interest of the entire section. The orchards which before their introduction to the pruning tools and cultivating implements were equal to the worst, have taken on an appearance common to the best, and their owners are delighted beyond measure at the prospects now before them.

PRACTICAL MAN IN CHARGE

The practical part of the work is in charge of Mr. W. F. Kidd, of Simcoe. Distinct credit is due Mr. Kidd for the thorough manner in which the work has been accomplished. The orchards are located on main roads. Large signs draw the attention of passers-by to the work that is being done. This has helped to create the great interest already apparent on the part of other orchardists.

CARE GIVEN THE TREES

Three sprayings in all will be given for the season. With the exception of one of the orchards, where part of the trees are being sprayed with Bordeaux, commercial lime-sulphur, diluted one to forty, and arsenate of lead, three pounds to the barrel, is the spray mixture used. The spray outfit is of an ordinary kind, the waggon and tower having been fitted up by one of the owners of the orchards.

It is such as any farmer might make for himself. In each of the orchards, demonstrations in spraying and in pruning have been given. Farmers attended in large numbers.

The influence of the demonstration work is having effect. Farmers have commenced to prune their trees, and to plow and cultivate their orchards. Mr. Kidd will remain in the district throughout the summer, going from farm to farm, talking over orchard matters and showing those farmers who wish to learn by actual demonstration how to prune and care for their orchards so that they may return greater profits.

An extension of this line of work to other similar sections throughout the province is needed. The Ontario Fruit Growers' Association, the Department of Agriculture and local organizations should co-operate to that end.



After Pruning, No. 2

The same tree in Mr. Campbell's orchard after pruning.

Peach Leaf Curl

I enclose you leaves taken from my peach tree. They are curled up and present a most horrid appearance. This is the second or third year they have been affected in this manner. Can you give me any good solution that may be used as a spray to remedy this evil?—H. F. L., Brantford.

The peach leaves are attacked by a very common disease of the peach: the peach leaf curl. This is very prevalent and very severe in all peach growing districts this year. Trees badly affected for several years in succession are often so greatly weakened that they will die. The disease can be kept under control by spraying with either Bordeaux mixture or lime-sulphur before the buds begin to burst in the spring of the year. If this spraying is put off until the buds have started to burst or are well swollen very often it fails to give satisfactory results. One spraying is sufficient.—L. Caesar, O. A. C., Guelph, Ont.

Banding Apple Trees

Grant S. Peart, Barlington, Ont.

In apple sections infested with the codling moth, the time has come to supplement spraying. No matter how thoroughly the spraying may be done there are always some moths left.

In addition to spraying, we have used bands for many years with excellent results. Our experience indicates that burlap sacking, of which bran sacks are made, is the only material fit to use, because the worms will not enter bands made of dyed cloths. We aim to make the bands long enough to go around the trunk of the tree. They are placed anywhere from three to four feet above the ground, so that any hogs running in the orchard are unable to reach and destroy them. The bands should be made from eight to ten inches in width, and folded once so as to have a double thickness. When placed on the tree they should be stretched reasonably tight so that they will not sag with rain. One nail is sufficient for each band.

The larvæ go into and under the bands and sometimes transform into the adult moth in less than a week, according to the weather conditions. Thus, the bands should be examined at least once a week. To do this we find that the handiest tools to use are a light house hammer or a pair of pinchers.

When removing the band, take one end in the left hand and strip it from the tree carefully, otherwise some of the worms will drop to the ground and escape. Before replacing it, the band should be thoroughly examined, inside and out, so that every worm is detected and crushed.

By working systematically, a man can do about 200 trees a day quite easily.

The bands placed on the trees during late spring and early summer, should be examined for the first time not later than the middle of July, and not taken off the trees for the winter before the apple crop is harvested.



The Simple Spraying Outfit Used

The implements used in the demonstration work were of an inexpensive nature. Already farmers have bought and fitted up several spraying outfits like this for use in the section.

Banding apple trees is a profitable work. With spraying combined, we have frequently reduced the wormy apples to ten per cent. Another advantage to be derived, and one which is very liable to be overlooked by the grower, is the encouragement into his orchard of beneficial insects. Very often we have found while examining the bands, numbers of larvæ of the ladybug beetles, ichneumon and brachonid flies, feeding on the codling worms.

Thinning and Summer Pruning

W. J. L. Hamilton, Salt Springs, B. C.

Although it is frequently regarded as one of the minor operations of the orchard and sadly neglected, a great deal of the success of the commercial orchard depends on the proper thinning of the fruit. It should be understood that it is seed production rather than fruit production which saps the vitality of the trees: consequently, as trees are disposed to overbear, exhaustion ensues, and a year is needed in which to recuperate. This is the reason why most trees only bear a good crop every second year.

If, however, thinning is performed judiciously, the tree freed from the labor of so much seed production, turns its attention to perfecting the fruit left on it: hence they are larger, more perfect, more vigorous, and consequently more resistant to disease; in other words, more No. 1 fruit is produced and fewer culls. Sun and air, also, obtain full access, and a better color is obtained, which, in this day of the red apple, means better prices.

When fruit, particularly apples and pears, touch one another, the spray cannot find access; besides which, at the point of contact the skin is thinner, and insects which feed on the fruit find easy access, generally spoiling both the fruit where they touch.

If the simple rule is observed to thin all fruits so that, when matured, no two fruits shall touch one another, the tree will not be exhausted by the over production of seed, and so will bear well every year. The crop also will be heavier, since the individual specimens will be much larger, besides almost all of them being perfect specimens, and in consequence, of the highest market value. This good fruit can be obtained only where intelligent spraying is conscientiously carried out in conjunction with the pruning and thinning.

SUMMER PRUNING

Another point often imperfectly understood is the importance of summer pruning. In the winter we prune to shape the tree, and for wood production, generally cutting back about one-third of the year's growth, whereas in summer we

prune with the object, in the apple orchard, of producing fruit bearing spurs. These spurs are really abortive branches, that is, branches whose growth has been checked.

If then, in summer, we pinch back with the finger and thumb, all branches whilst they are still green and tender, upon

Use of Lye as a Spray

I am perplexed regarding spraying. I noticed in the Gillett Lye pamphlet that they claim it is a sufficient spray for all purposes. What strength of lye would you use in spraying, after apple blossoms fall? Do you think 2 lbs. with 5 lbs. lime to 50 gals. of water sufficient strength? In the pamphlet they claim it will destroy aphids



A Sample of the Signs That Called Attention to the Work

This shows a portion of Mr. Osborne's orchard at Dunedin. Note its sadly neglected condition. It is typical of hundreds of other orchards in this district.

which we want fruit spurs to form, at about the fourth leaf of the young growth we will find that the end bud left will grow strongly, as it receives most of the sap, and tries to take the place of the original twig which has been shortened; at the same time the other three buds left on the shoot will also start to grow, but, since the end one is taking most of the sap, these are starved and dwarfed, forming fruit spurs.

If these points are properly attended to, and the land is cultivated "with brains," the crop can hardly fail to be a good one, given reasonable weather. In cultivating, never, if possible, use a plow, which tears up and breaks the surface roots, leaving projecting ends, and weakening the tree. Always disk the orchard; use a disk with side draft to cultivate close to the stems, without bringing the team too close. If the disk does not cultivate deep enough, weight it. Commence to cultivate just as growth starts, and keep on until you want growth to stop, or, in other words, when the tree has made all the wood it can ripen before frost.

Also rake up and burn all leaves and rubbish, as these are the winter nesting place of insect pests and many fungous diseases.

Burn or otherwise destroy all the fruit you thin out. Remember, that a few fruit trees, properly attended to, will pay, whereas a number of neglected ones are an expense and an eyesore.

and canker worm. Will it kill bark louse bug?—H. W. C. C. Windsor, N. S.

We have never used Gillett's Lye during the summer as a summer spray. We have found it very effective and useful as a winter and spring treatment for bark lice, and for cleaning up the branches of trees. We should not spray for apple trees in foliage, unless it were very much diluted; the amount of dilution I am not prepared to say at present. For winter and spring treatment one pound to two gallons of water is about right, and does good work.—Prof. W. Lochhead, Macdonald College, Quebec.

In our experience, the best treatment of Oyster Shell Scale is a lime wash when the trees are dormant. The lime-sulphur wash is also good. These, we believe, give better results than Gillett's Lye, which has not been found satisfactory here in controlling Oyster Shell Scale.—W. T. Macoun, C.E.F., Ottawa.

The strength of spray should depend very much upon the age and species of the tree. It would be well to experiment a little, starting with a weak solution and gradually making it stronger until the proper strength for the work required is ascertained.

Lands which yield good crops of wheat and corn may be expected to be good apple lands, if other conditions are right.

Lessons from Professor "Nineteen Ten"

Reported by "Weary Worm," Winona

PROFESSOR "Nineteen Ten" is by far the youngest of four Professors, being not yet six months old. Young as he is, however, he is already teaching us lessons with the best of our college men, who, able and clever as they are, at the same age were much more interested in the pure milk question than in either the fungus diseases or insect enemies of fruit.

The Professor, in his own original way, has just given a most valuable lesson on the question of "Curl Leaf" in the peach. This he has done by means of an unusually early and warm opening of spring, followed by a long spell of cool, wet weather. It is "up to us" to profit by his strong hint.

It has been demonstrated this season that the only way to control the serious fungus disease of the peach is by early and thorough spraying with a mixture of lime and sulphur, in which the proportion of lime must be large.

This application can hardly be made too early or too thoroughly. A prominent grower at Vineland had his trees sprayed while it still froze hard at nights; result, trees free from "Curl Leaf." Numerous object lessons on this question have abounded in the Niagara District this year for any one with eyes to see. Where the spraying had been done carelessly it was very visible in the orchard; where branches had been missed the "Curl Leaf" was bad, the rest of the tree being free from it.

Some growers sprayed their trees from one side only: result, one side of the tree with but little "Curl Leaf," and the other with plenty. Where individual trees at the ends of the rows were only half done, the results were plainly manifest; and where trees were left unsprayed terrible results followed, amounting in many cases to the total loss of the crop.

GROWERS UNPREPARED

The exceptionally early season caught many growers unprepared. They left the spraying to the usual time with disastrous results, which will cost them a large proportion of their crop.

The lime and sulphur spray for "Curl Leaf" is purely preventive, and must be applied before the buds come out. If applied later it does little, if any, good. Moreover, it would seem as if it is the lime which chiefly does the work.

Several interesting experiments have been conducted along this line. In the orchard of Mr Newton Cossit, of North Grimsby, trees sprayed early with lime and water only—at a strength of 25 to 30 pounds of lime to 40 gallons of water, were free from the disease, and compared favorably with other trees in the same orchard sprayed at the same time with lime and sulphur.

A number of experienced fruit-growers report that the old home-boiled mixture, 20 lbs. lime and 15 lbs. sulphur to 40 gallons water is preferable to either the home-made concentrated or the commercial article for the prevention of this disease. Others report satisfactory results from the commercial article when very thoroughly applied. To be on the safe side it is necessary to add from 15 to 20 pounds freshly slaked lime to each 40 gallon barrel of home-made concentrated or commercial preparation previous to putting on the trees. This will ensure success, and indeed Professor Caesar of the O.A.C., Guelph, has already advised this course.

LESS SUSCEPTIBLE VARIETIES

Another lesson taught by Professor "Nineteen Ten" is that Early Crawford, Fitzgerald and peaches of that type are less subject to "Curl Leaf" than other varieties, and that Early Rivers, Triumph, and Elberta are peculiarly liable to it. A further lesson is, that in a season like this it is not advisable to cultivate the peach orchards too early, as such action has a tendency to increase the disease.

Out of seeming evil good often comes. It has been demonstrated to a certainty that those who were ready and forehanded in applying thoroughly the proper lime and sulphur mixture are about to reap a great reward, for these men have the crop and the others have it not.

Instances there are of orchards containing 50 acres and upwards of peaches being practically free from the curl as a result of proper spraying, and of orchards of five acres and less losing their whole crop from neglect of this precaution.

Those who thus escaped have a large crop; indeed, one large grower in the Winona neighbourhood already has a gang of women and others employed thinning the crop.

OTHER LESSONS

We are being taught, this season, some other things: one is that it is not safe to use Arsenite of Lime or Paris Green in combination with lime and sulphur, several such attempts having resulted in burning the foliage. Arsenite of Lime can be used with Bordeaux safely, at a strength of one quart of the stock solution to 40 gallons water. But if a drenching spray be needed less than a quart must be used.

Prof. Stewart's formula for making Arsenite of Lime is: 2 lbs. white arsenic, 2 lbs. sal soda, and 1 to 1½ gallons water; boil till thoroughly dissolved, then add 3 to 4 lbs. lime, and boil five or ten minutes longer, adding water to make up 2 gallons. This is the stock solution previously referred to. In actual

use this spring, however, it was found that where a drenching spray was used on early apples, the foliage was slightly burned, but when the amount of lime added was increased to 5 and 6 lbs. no injury took place.

Mr E. M. Smith, a well-known grower near Winona, reports that using home-made lime and sulphur of winter strength diluted 1 to 40 as a summer spray on plums, burnt the foliage, but that diluted 1 to 50 it did not hurt the foliage, and did good work.

Another lesson taught by Professor "Nineteen Ten" is, that in a season like this it does not pay to set out tomato plants too early. Those first put out, in most cases, had to be replanted and in other cases were behind those planted later.

These are a few of the lessons the Professor has already taught us. As he grows older, he probably will have more lessons for us, perhaps of still greater importance.

Thinning Apples*

W. H. French, Oshawa

Three years' experience leads me to believe that thinning apples is fully as important and profitable as either good fertilizing, working, or the spraying of the orchard. Judicious pruning will help, but cannot take the place of thinning.

In the season of 1907, I thinned 100 trees. I commenced in a block of ten Snows, ten Wagner and forty Golden Russet, which were well laden. I removed one-third of the fruit from all but two trees, leaving these two for comparison purposes. In another lot of forty Northern Spys there were six trees that were exceptionally heavy laden. I left two of these unthinned; from two I removed one-third of the fruit; from the other two, two-thirds. The remaining thirty-four trees were well filled. I took off one-third from all but two. Part of them I finished at one picking, and part I went over twice.

THE RESULTS

Later, when looking over the work of the summer, I found: First, that until one is familiar with the work, it is better, if there is much fruit to remove, to thin twice rather than once. The second thinning should follow about three weeks after the first. It requires about that time for the results of the first work to develop, second, that on my light land, it is not quite enough to only remove one-third of the fruit when the trees are heavily laden, one-half is better; third, that to remove two-thirds of the crop is the extreme limit, as otherwise the fruit is liable to be coarse and overgrown.

*Extracts from a paper read at the Short Course in fruit growing held at the Guelph Agricultural College.

Lawn and Garden Suggestions for July

CONSTANT attention to all plant life must be given this month to keep everything looking nice. Watering must be done copiously so as to thoroughly soak the soil. Do not be content with merely laying the top dust. Water in the evening if possible, and then next day slightly stir the surface of the flower beds with a hoe or rake. By doing this you encourage the roots to go deeper in search of nourishment.

Keep all dead and withered flowers cut from your plants so as to prevent the strength of the plants being used up in forming seed pods. Constant attention to this will insure a continuous supply of blooms on many plants which are sometimes thought to produce only one crop of flowers. Many varieties of the campanulius, poppy, and stocks will produce fine flowers the second time if well fed and not allowed to seed.

Take notes of your perennial bed and borders, and determine what needs removing the coming fall, and also the time of flowering, and if the flowers are as good as last year. If they are not, it is proof that the soil is exhausted, and the plants need removing and dividing up again.

Look well after your Asters and Dahlias. Do not let them suffer from drought, or they will be a failure. Water copiously in the evenings, and mulch around the plants with well-rotted

manure or grass clippings. Watch for the Aster bug. Spend a few minutes each evening catching them. You will be surprised how it will help to lessen the number of spoilt blooms.

Keep all plants well tied up. Doing so makes a place look better and more business-like, and aids the production of better flowers. All early spring bulb foliage may now be cleaned off. Those that are dry will pull away. Those that are green, such as Narcissus, may be safely cut away a few inches above the soil.

If you have any blank spaces in your borders there is still time to sow seeds of candidtuft, portulaca, and annual poppies, which will make a fine show during the late summer.

Give close attention to the pansies. Keep them well watered. Apply liquid manure once a week. Keep all seed pods picked off. You should then have good flowers all the season.

WITH THE VEGETABLES

In the vegetable garden there is still time to sow dwarf beans, cabbages (late kinds), and cauliflowers. Also sow fortnightly small sowings of radishes and lettuces, cress, and some parsley, which will do to lift later.

Celery will now require lots of water and feeding. Apply liquid manure once a week, but see that the soil is moist before doing so. If it is not, then soak



Blood-root a Hardy Native Plant

The Blood-root, *Sanguinaria Canadensis*, has the purest white color of any plant known. It is one of the most shy of wild plants, but it takes most readily to the garden, where it will be apt to double in size, flower earlier and to repudiate its love of water. With care it can be transplanted from the woods in July. These flowers have been grown successfully for many years in the garden of Mr. A. Alexander, Hamilton.

the ground well with clear water first, and then apply the fertilizer. Towards the end of the month the early celery may have a little soil drawn close up to the sticks, which helps to keep them moist, and commences to bleach it. Take care not to draw up too much soil, or it may cause rot to start.

THE SMALL FRUIT GARDEN

Keep all fruit bushes free from weeds, and spray occasionally with Bordeaux mixture to keep leaf blight in check.

A good mulching around the raspberry and blackberry canes will be beneficial this month, and will prevent the surface roots from being dried out.

Keep all small shoots and side growths cut away on your tomato plants, and thin out the heavy foliage, to let all the sunlight possible reach the fruit.

GREENHOUSE WORK

In the greenhouse, plant cucumbers if you have the room, and clean up under the benches. Whitewash the walls, and so forth, so as to prepare for growing your winter flowering plants.

The Rudbeckia

J. McP. Ross, Toronto, Ont.

Its perfect hardiness and the fact that it can be grown almost anywhere, added to its easiness of propagation, have made the rudbeckia rather too familiar in some localities. Nevertheless, they are a beautiful class of plants, and an indispensable border plant, despite their freedom of growth and popularity.

Its proper place is at the back of the border next to the fence, where its tall spikes of bloom show to advantage. It grows to a height of five to six feet, producing masses of pure yellow double flowers in great freedom—lighting up the neighborhood like a flock of yellow but-



A Few of the Flowers in a Hamilton Roof Garden

The roof where this illustration was secured has been converted into an attractive roof garden by its owner, Mr. C. D. Blachford, of Hamilton. The flowers are planted in boxes. Summer cypress, scarlet runner, hyacinths, sweet peas, climbing nasturtium, begonias, white alyssum, blue lobelia, geraniums and numerous other vines and plants, have been grown successfully. The adjoining stone wall has been covered by a climbing vine which grows up wire netting eight feet high and presents a most pleasing appearance, especially when in bloom.

terflies, and from which ample cuttings can be made for decorative purposes. The variety (Golden Glow) is one most in cultivation, but there are many other single varieties equally desirable and floriferous.

It is necessary sometimes to tie the clump to a centre stake to prevent the



Golden Glow in Bloom

stalks breaking down with the wind, as the abundance of flower blooms make them top heavy in showery or windy weather.

The growing popularity of all the herbaceous plants is causing growers to be on the look out for new varieties, as many amateurs are going in for collections of the various species. Catalogues, therefore, give descriptions of many new rudbeckias, all worthy of cultivation. A few plants make quite a show. They bloom from July to September, and thrive under all conditions of neglect or cultivation. The best results are obtained when they are given ordinary care. As they are strong growers they require manure annually. When you do not need to plant again, or cannot give the plants away, they may be kept under control by digging surplus growth under.

Red Spider on Geraniums

What is the cause of geranium leaves turning yellow and shriveling?—A. J. L.

The trouble is probably red spider, a nasty pest during July and August, especially in light sandy soils. The remedy is to try and spray often with cold water on the under side of the foliage. Mulch the soil with short grass from the lawn.—E. F. Collins.

Care of Bulbs

Will you kindly give me some information on how to manage bulbs after they have flowered? Some bulbs seem to do better if taken up every year, while others do better when left alone. Of course Gladioli should be taken up every year. I have had much trouble with my Poeticus Narcissus. Many of the bulbs blight.—A. J. C.

Tulip bulbs give best results, as a rule, if the bulbs are taken up each year after the crops die down, or if the bed is intended for annuals the tulips may be dug while the tops are yet green, and heeled in in a well drained place with the tops still attached to them. If taken up when the tops are dry, the bulbs are kept dry until September, when they should be re-planted. If left in the ground all summer and subjected to moist and dry conditions of ground alternately, they are likely to be injured, although in well-drained soil some varieties will persist for several years; hence it is not really necessary to take up the bulbs each year. Narcissus should not be taken up every year, but when the clumps get so thick that the bloom is affected they should be dug out and the best bulbs re-planted and given more room.—W. T. Macoun, C.E.F., Ottawa.

Trouble With Geraniums

Can you give me a little advice regarding the enclosed geranium leaves. If you hold them against the light there is something in the leaf like a fungus. It gradually spreads, the leaves turn yellow and drop. The blooms do not open in the center, but shrivel up.—S. L. B., Island of Orleans, Que.

We have had the leaves examined carefully and have found that the brown spotting and dying of the leaves is due to a bacterial disease. This disease is favored by moist conditions and therefore often caused to develop and become noticeable by over watering, lack of drainage and too much shading. If these conditions are overcome and the soil in which the plants are growing is suitable we

think that there is no fear of the disease becoming serious.—J. E. Howitt, O.A. C., Guelph, Ont.

Cactus as a Decorative Plant

J. H. Callander, Peterboro

The growing of Cacti, a class of plants that comprises in its members the strangest productions in form and habits that Nature has ever added to plant life, has received a decided revival within the last few years. Their splendid qualities as decorative plants, both in the conservatory and garden are beginning to be realized. The first great factor that has helped to bring about this result is the success in creating odd and beautiful effects by massing in indoor groups, or forming striking designs in carpet bedding, by those who have tried the Cacti for these purposes. This success has led others to desire some such arrangement. For house plants, there is no other species like the Cactus. It endures all temperature, the dust that is the enemy of foliage plants, gases which destroy other vegetation, and appears to simply revel in a long siege of neglect. Added to this, the oddity of form and the wonderful coloring of the spines, has made them always a source of curious admiration. To crown all, the magnificence of many of their flowers surpasses everything that it has been found possible to produce under the most favorable cultural conditions.

This grandeur of bloom is not found on the carefully tended plants as might be expected, but comes oftenest on neglected specimens that find their ideal conditions in being allowed a season of rest. They reward the delighted owner with a flower or flowers of rare beauty, form and coloring. Cacti not only stand neglect, but actually demand it to enable them to give the best results. A great many of the parks in the larger



A Backyard Garden in Toronto Which Shows What Can be Done

This garden, of Mr. R. C. Wade, Riverdale Ave., Toronto, demonstrates the great improvements that can be made in the average city back yard. Compare this backyard with that of the average city house.



Homes on Van Stittart Ave., Woodstock, Ont.

Note that all front and division fences between lawns have been removed. In every town and city there are residences and streets, the appearance of which might be improved by the removal of unsightly fences.

cities of the United States have had a very fine collection of Cacti for many years. They have been bedded out each season, and visitors have always been led to the Cactus bed as one of the sights of the park. These influences have been quietly at work to bring these peculiar plants into prominence, and general favor.

Renewing a Lawn

I have had a fairly good lawn for three years, but there is very little sod. I have lots of earth and I want to know how it would be if I put about half an inch of same all over it on the top of the present grass. Would I practically have to make a new lawn, or would the present grass grow through it? Of course, I expect I would have to put some seed on.—H. S., Smith's Falls, Ont.

It will do no harm and probably will be of benefit for you to place a half inch or even more of well pulverized earth, spread evenly on your lawn. This should be done before the grass grows very much. If much growth has been made, mow it closely before applying the earth. Seed may be sown and raked in after the earth has been spread. Make the surface level and firm by rolling.

Summer Care of Bulbs

Narcissus bulbs should be left undisturbed in the ground as long as they continue to produce good flowers. Most of the best varieties will produce good flowers for four or five years. If it is desired to increase the clumps or to make new ones, they may be dug after a few years and the bulbs separated and given more room, when they will multiply again with renewed vigor. Hyacinth bulbs may be left in the ground from year to year, where they will often increase. If tulips are in suitable soil they may be left undisturbed for three or four years, or

until they get too crowded to produce good flowers or have died out so much that they need to be replaced. As a rule, the best flowers are obtained by planting new bulbs each year. This is almost a necessity for show beds. As soon as the petals are formed, the seed pods should be removed, in order to conserve the energy of the plant, which would be used in developing seeds instead of the bulbs, but the stem and leaves should not be cut until they have dried up as they are necessary to the proper maturing of the bulb. As soon as the stems and leaves have died, the bulbs may be dug up, cleaned, and kept dry until August, or if the bed is needed for annuals, they may be dug up shortly after they have done flowering, and heeled in in a partly shaded place so that they will dry up gradually, in order to get them as mature as possible.

June Pinks

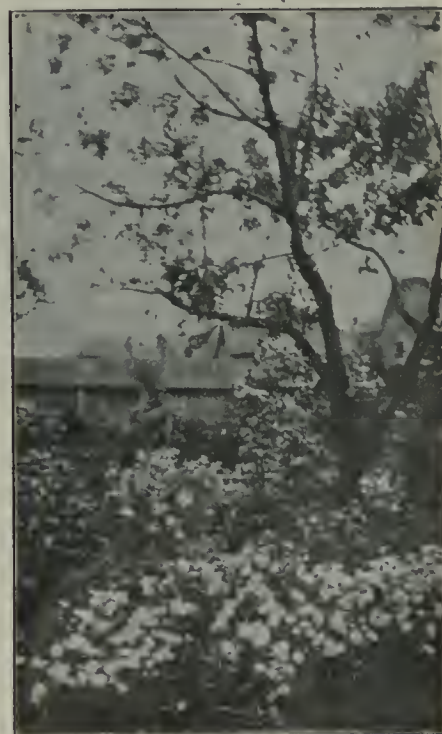
T. H. Taylor, Hamilton, Ont.

Although the June or Scotch Clove Pink does not appear in the gardens of to-day to the same extent as formerly, it is still a very useful hardy border plant. It has very neat foliage for a narrow border plant, particularly after the blooming season is over when the new growth is coming, and all flower stems have been removed. Our preference for this flower, with its exquisite odor, is shown by the fact that although ours is only a small garden in a city lot, a walk from the house to the rear of the garden is bordered with them, in addition to those shown in the accompanying illustration. Some of the earliest recollections of gardening and flowers take the writer back to boyhood's days, when a handful of these flowers were given him, leading to a resolution that if ever the possessor of a garden, this sweet flower with its de-

lightful fragrance should have a goodly space to itself.

The culture is easy. It will grow in any ordinary garden soil, though perhaps a light soil suits it best, if fertilized. The clump shown in the illustration grows in a moderately heavy soil, which has been well treated with fertilizer for the roses growing behind the pinks. Those bordering the walk are growing in a very light soil. They are doing well but do not show quite such good flowers as those in the clump.

This plant is very easy of propagation, should any readers of THE CANADIAN HORTICULTURIST wish to increase the space devoted to it, or to raise new plants for other garden-loving friends. After the bloom is over a heavy growth of new spurs takes place which when three or four inches long, can be cut off and placed in a trench a few inches apart, and the earth firmed around them. By fall, most of the cuttings will be rooted, and will bloom the following June.



June or Scotch Clove Pink

A section of the flower bed in the garden of Mr. Thomas H. Taylor, Hamilton, Ont. (See accompanying article).

The trench should preferably be in light warm soil, with reasonable care that the earth does not dry out.

Several attempts have been made by the writer to secure the White Pinks, Her Majesty, Snow, etc., but either he has been told that the florist was "sold out," or the order was filled with plants which when they bloomed turned out to be the old ones he already had. Her Majesty more nearly approaches the carnation, and is a beautiful flower, but no opportunity has yet occurred for the writer to test its growth and hardiness.

Mushroom Culture*

J. McPherson Ross, Toronto

TO a great many people the art of growing mushrooms is quite a mystery, and even amongst gardeners of considerable experience and skill their cultivation is attended with a good deal of guess work, because they lack the knowledge of two or three essential points, which, if attended to at the outset, the after crop of this delicious esculent can be looked forward to with absolute certainty. Everyone likes mushrooms, and there is no reason why anyone who can procure the manure and has a place, either in a shed or out-building or a cellar, may not have a bed producing plenty of mushrooms the year around, excepting June or July—and even in these hot months they can be grown if kept covered up from the flies.

Mushrooms will grow anywhere when given the proper materials, and dark, dry cellars not being used for anything else are ideal places, spaces under verandahs, or the prepared manure may be packed in boxes any size, so long as they are deep enough to hold eight or nine inches of manure. Old bureau drawers serve capitally for this purpose—in fact, there is no limit to their cultivation in places that may be convenient or that ingenuity can suggest.

To have certain success, procure if possible the daily manure and sweepings from a stable, whatever quantities possible, forking out the long straw, if any, and add a third of good garden soil to the manure, mixing it thoroughly, turning daily to prevent it heating too much, adding to the pile fresh manure and soil as you procure them till you have sufficient to make a bed four or five feet in width as long as you have space for, and when packed down to be not less than eight inches in depth.

After the first rank heat has escaped, make the bed by placing the manure in layers, pounding it firmly. Pound it as you would pound the soil in setting posts; the more compact your bed is, the longer it retains the heat, and the spawn travels quicker through it.

In locating your bed, do not put it on a cold floor or where any water would be apt to raise and be absorbed by the bed; in such a possibility, raise your bed up four or five inches, and if made against a damp, cold wall, run some boards between.

When your bed is made put a thermometer in it and observe the temperature, which will rise up to a greater or lesser degree; but when you notice it going down and about ninety degrees, place your spawn in it by making holes four inches deep, fifteen inches apart,

and place the broken spawn in small pieces in the holes, covering the same.

A particular point in after-success is to wait after spawning for a week or ten days before you put the top covering of soil. Many growers are so impatient that they put the soil on too soon. The heating or fermentation going on in the new bed causes moisture or hot steam, and this must be allowed to escape, so that if the soil was put on before this occurred it would be retained in the bed and kill the spawn. This is the actual cause for the failure in nine out of ten cases of attempts to grow mushrooms, and too much stress cannot be laid on these two points in growing them: The first, being careful not to spawn the bed till the heat is receding and is about ninety degrees or eighty-five degrees, and the second, not to cover with the top two inches of soil till eight or nine days have passed after spawning. When putting on the top two inches of soil, pat it down firmly and smoothly and then place a layer of straw over your bed; though not actually necessary, it aids to keep the soil surface moist and prevents the air drying up the bed too quickly, and keeps a still temperature. The temperature to grow mushrooms should be fifty-eight and one-half degrees, and should not vary, but anywhere between fifty to sixty degrees will answer. I have succeeded in varying temperatures, but that is the proper—fifty-eight and one-half degrees—and that is why underground tunnels, sewers or caves are utilized, because the temperature can be kept so even.

Following out the foregoing instructions, you should have plenty of mushrooms. Be careful not to get the manure wet when preparing it, as this delays and hinders your bed; in fact, it is absolutely necessary to save it and prepare in some dry place. There is sufficient moisture in the manure itself during the process of heating, but if conditions occur in too dry a place and your bed needs water, warm it well before applying, say about 100 degrees, an occasional sprinkling will keep it right. When preparing material for your bed, be careful to see there is no old iron, such as pieces of hoop iron, or nails. It is stated as a curious fact that iron will prevent any mushrooms. It is recorded that among rival mushroom growers in France care is taken of the beds to prevent any enemy from sticking nails into it, as this meant failure.

In about six weeks or two months, if the temperature keeps right, mushrooms should appear, and when gathering give the mushroom a slight twist so as not to disturb the little ones, and be care-

ful to fill up with good soil any holes made in the bed by removing. Never cut them off with a knife, as the stump remaining will decay and infect the surrounding growth.

After a bed has exhausted itself, which it should in about three weeks, a couple of inches of good soil applied on the top will renew the crop for a short while. I have found it efficacious to occasionally water it with liquid manure, which stimulates and increases the size of the mushrooms. When completely exhausted, remove the old material, which is just right for digging in flower beds or for bulb cultivation.

A good plan to have successive crops of mushrooms is to keep adding to your bed fresh manure treated as directed, removing the old portion as it throws off the crop. Mushrooms can be grown anywhere on shelves built for them in the cellar, making one above another, or you can have a bed in a barrel by filling the barrel, spawning it—having regard to the temperature—and then cutting holes in the sides of the barrel at various places, through which openings the mushrooms will appear. To sum up, the whole art of mushroom cultivation lies in observing these rules:

1. Get your manure fresh and keep from wet.
2. Turn daily and mix a third of good soil with it.
3. Make your bed, when pounded thoroughly firm, to be about eight inches in depth; any deeper would make it heat too much, and any thinner or shallower would not be enough.
4. Spawn it when the heat is receding from ninety degrees to eighty-five degrees, never more, as the heat would kill the spawn.
5. Wait ten days after bed is spawned before you put on top layer of soil, so as to allow excess heat and moisture to escape.
6. Do not water unless you have to and have it at blood heat.
7. Have the temperature near sixty degrees, no more.

As it takes six weeks to two months for the crop to grow, you can make the beds any time, so long as you avoid it cropping when flies abound. I would not advise making any beds in May. It is not necessary to grow mushrooms in dark places, but they will grow there as well as in the light.

The average vegetable garden near Toronto is from five to ten acres. Nearly all growers have one or more green-houses, which are used in the winter for forcing lettuces, radishes, rhubarb, etc., and to get plants well started ready for spring work.

*Extract from an address read at a meeting of the Toronto Horticultural Society.

Intensive Gardening

Thos. Delworth, Weston, Ont.

In a well-kept vegetable garden in the month of July every square foot should be occupied with some growing crop. Above all things, avoid waste corners and bare patches. They nearly always mean weeds and a crop of weeds for next season. While it may be easier to weed a garden when there is no crop growing on it, in practice it generally goes weedy because the work does not appear so urgent and returns for the labor are not so apparent.

Again, land in the condition of tilth that a vegetable garden should be, is too valuable to be allowed to stand idle at this part of the season. As fast as crops of early potatoes, peas, spinach, radish, lettuce, Dutch sets, strawberries and so forth are removed, fill up the space again.

Quick heading varieties of cabbage, like all head or early summer, or cauliflower of the snowball or erfurt type will generally give a profitable crop if planted as late as July 15th or 16th. Pickling cucumbers or winter radish, where you have a market for them, may be sown any time this month or even later.

Butter beans or the green-podded Valentine or Refugee, if sown this month will often give a large crop of better quality than the early spring sowings. The writer harvested an excellent crop of Refugees last year that were sown on land from which a crop of strawberries had just been taken. The last picking of berries was made on the 15th, when the plants were ploughed under and the land thoroughly disked and harrowed and the seed sown on July 17th.

Diseases of Celery

F. W. Hack, Norwood Grove, Man.

Main diseases of celery are blight, heart rot and rust. They are caused, in some cases by inherited tendencies, as in the case of poor seed, or they are brought on by weakness of the plants caused by a severe check or climatic conditions. The best preventive of disease is to keep the plants growing vigorously from the start and thorough and consistent cultivation. It is the plants that have had their vitality impaired by overcrowding, careless handling, or neglect of cultivation that are most damaged by disease. By using proper methods the loss in this way will not be great.

The natural rainfall is usually sufficient for a crop of celery. While the celery plant requires plenty of moisture it is very easily injured by excessive watering. Any sour, water-logged condition of the soil will prove fatal to a good crop. When it is necessary to supply water a good soaking should be given and as soon after as possible the surface should be

well stirred. Best results are generally on the side of natural soil moisture conserved by good cultivation.

While celery growing is not beset with difficulties to the experienced grower first attempts in this direction are usually failures. There seem to be facts in connection with celery growing, which though apparent to the experienced grower, cannot be readily communicated to the novice. They can be learned only by experience. It is well therefore to be content with small beginnings. Success will come with perseverance. There is no crop that will better repay the gardener for careful treatment than a good crop of celery.



The interior of One of Smart Bros. Greenhouses

The illustration shows lettuce being grown on rather a large scale. This greenhouse is on a 140 acre market garden, one of the largest in Canada.

Seasonable Hints

The cold weather in the latter part of May and first few days of June has emphasized the fact that it is good practice to harden off plants before setting out in the open ground. Thousands of tomato plants are showing a bleached appearance of stem and the chances of a profitable crop from them are very much lessened in consequence.

In many cases the damage would have been much less had the plants been properly acclimated before setting out. It does not pay to set out tender plants from the greenhouse direct to the open field so early. A few days in a cold frame will toughen them to withstand the cold winds we so often get at that season.

This applies to almost all other plants. Onions, beets, lettuce and similar crops are usually transplanted to the open ground at that time of year.—Thos Delworth, Weston, Ont.

When cutting asparagus for market, use a short bladed sharp knife, cutting just under ground. Never allow the heads of the stalks to open or become seedy-looking.

A 140 Acre Market Garden

The market gardening establishment of Smart Bros., Collingwood, Ont., comprises over 140 acres. For the most part it is devoted to general garden truck. Strawberries, blackberries, and other small bush fruit are grown extensively. Large areas are devoted to carrots, beets, onions, and cabbage. The crops were all looking well, and the whole place was in a fine state of cultivation when visited recently by an editorial representative of THE CANADIAN HORTICULTURIST.

The record of Smart Bros. in building up their business is somewhat remarkable. They were formerly bakers.

Owing to the confinement of inside work, their health was not of the best. They decided to make a venture at outside work, and they took up market gardening. They started in a small way owing to lack of experience and lack of capital. The business grew. They kept adding to it year by year, putting on new lines as they acquired the experience and capital.

This year Smart Bros. are going in for flowers, having experimented a little with this line last year. The greenhouses on the place afford an indication of the growth of the business. As the business was extended, the old houses were added to and new ones built. This summer, Smart Bros. anticipate building an additional greenhouse, equal to their best, an illustration of which appears herewith. Now that the truck is all outside, the space in the greenhouse is given over to cucumbers.

The cucumber vines are trained on wires, and were just beginning to bear at the time of inspection. The most recent addition to the business is that of a sauer-kraut plant, the machinery for which Smart Bros. have on the ground ready to set up for the work next fall.

The Canadian Horticulturist

Published by The Horticultural
Publishing Company, Limited

PETERBORO, ONTARIO



The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF THE ONTARIO, QUEBEC, NEW
BRUNSWICK AND PRINCE EDWARD ISLAND
FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription price in Canada and Great Britain, 60 cents a year; two years, \$1.00. For United States and local subscriptions in Peterboro, (not called for at the Post Office) 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than \$1.00.

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January, 1909.....	9,456	January, 1910.....	8,925
February, 1909.....	9,310	February, 1910.....	8,967
March, 1909.....	9,405	March, 1910.....	9,178
April, 1909.....	9,432	April, 1910.....	9,410
May, 1909.....	9,172	May, 1910.....	9,505
June, 1909.....	8,891	June, 1910.....	9,723
July, 1909.....	8,447		
August, 1909.....	8,570		
September, 1909.....	8,605		
October, 1909.....	8,675		
November, 1909.....	8,750		
December, 1909.....	8,875		

Total for the year .107,638

Average each issue in 1907, 6,627

" " " " 1908, 8,695

" " " " 1909, 8,970

Sworn detailed statements will be mailed upon application.

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THE CANADIAN HORTICULTURIST,

PETERBORO, ONTARIO.

EDITORIAL

A BOOM IN ONTARIO FRUIT LANDS

At last the fruit land in the Niagara district of Ontario is beginning to be appreciated at something like its true value. What might almost be termed a "land boom" is in progress. The whole district from Queenston around the end of the lake to within a few miles of Toronto, where it has been shown that tender fruit can be grown successfully, is affected. Land is being held at higher values than ever before. Private persons as well as companies have been purchasing land and holding it for an advance in values.

A comparatively new factor, hitherto but little known in the district although common to the fruit sections of British Columbia and in the United States, the land agent, has made his appearance. Large areas of fruit lands are being bought, subdivided and sold off in small lots. While it is possible that in some cases land is being held at figures out of proportion to its true value, the possibilities of good land in this section are so great, the present boom is well justified. The wonder is that it did not occur long ago.

This evidence that the people of Ontario are beginning to appreciate their opportunities is full of encouragement and promise. The new elements that are entering the situation mean that the possibilities of the tender fruit districts of Ontario will be more and better advertised from now on than ever before.

It is the land agents largely who have made the splendid possibilities of the fruit districts of British Columbia so widely known. Land equally as good as the best in British Columbia and with larger markets nearer at hand, and better shipping facilities, is abundant and is to be found in several of the lake sections of Ontario. This land can stand booming. It needs it. Only a comparatively small portion of the Niagara district that is suitable for fruit culture is under cultivation. The possibilities of this section are enormous.

The tremendous tide of emigration Canada is now experiencing will grow greater year by year. Not only is our great West being settled, but within a few years hundreds of thousands of settlers will locate in the vast clay belt of New Ontario. No matter how rapidly plantations may be set up in the fruit sections of old Ontario, the markets are destined to grow even more rapidly. No wonder our fruit growers are optimistic. They have every reason for being so.

THE SAN JOSE SCALE ACT

While it is true that the Ontario government has succeeded in confining the San Jose scale to those districts where it first secured its start, it would be only foolishness to pretend that the scale is not spreading in those districts—in some of them rapidly. There are various reasons for this, one of the principal of which is the fact that the Act of the Ontario Legislature relating to San Jose scale is very defective. Although this Act, with its various amendments, has been one of the most discussed acts ever passed by the Legislature, both the former Liberal government and the present Conservative government apparently have feared to grapple with the situation in the thorough and effective manner that the seriousness of the situation has called for.

The present provincial inspector has but little power over the local inspectors appointed by the various municipalities. In some cases, at present, the local inspectors are defying the provincial inspector to make them enforce the Act.

Recent legislation relating to sanitary inspection in cheese factories and creameries and also to law enforcement, proves that the government is aware that laws drafted on the basis of the one pertaining to the San Jose scale Act are more often than not a failure when their enforcement is left largely in the hands of local officials. The San Jose scale Act in Ontario needs to be revised so that the onus for its proper enforcement will rest entirely with the provincial government. This change cannot be made too soon. A vigorous agitation for such an amendment to the Act should be started.

SHIPPING EXPERIMENTS NEEDED

The Fruit and Cold Storage Divisions of the Dominion Department of Agriculture should test on a large scale and in a thorough manner the possibilities of shipping, not only peaches to Great Britain, but other perishable products, such as pears and tomatoes, as well. Experimental shipments that have already been made, for the most part by private individuals, indicate that there are great possibilities for an expansion of trade in this direction.

The responsibility for conducting this work rests with the Dominion government. The government will fall short of what the public expects from it if it does not conduct these experiments this year on a scale that will insure the work being done in a manner that will warrant the results obtained, being looked upon as a safe indication of the possibilities of this line of trade. The experiments may show that improvements in the existing cold storage facilities are needed. Time will be required to effect these. In the meantime, however, no time should be lost in ascertaining the possibilities of our present facilities.

MOTHER'S DAY

Reports received by THE CANADIAN HORTICULTURIST show that the observance of Mother's Day in May was more general throughout Ontario than ever before. The sentiment that is promoting the observance of this day met with such general approval this year as to show that there is an opening for an extension of this movement.

As previously explained in these columns, the object of this movement is to afford everyone an opportunity to manifest their love for their mother. The plan is to induce all persons to send boxes of flowers to their mothers or to wear a white flower in her memory on a certain day in May. The sentiment is a commendable one. There is room here for good work by such organizations as the Ontario Horticultural Association and the various horticultural societies of the province. The object of these societies is to encourage a love for the beautiful. This is one way in which it can be done.

The informal announcement that Mr. W. T. Macoun of the Central Experimental Farm, Ottawa, has been promoted and that hereafter he will have charge of the horticultural work on the various experimental farms operated by the Dominion Government throughout the Dominion, is a welcome one. No man is better fitted for this work or more deserves the appointment than Mr. Macoun. He is known and respected by fruit growers from the Atlantic

to the Pacific. Under his direction it should be possible to carry on experiments on all the farms, which while having in view the greatest possible promotion of local interests, will also aim to be of practical value throughout the Dominion. Under Mr. Macoun's direction we may expect to see a great increase in the value of the horticultural work conducted on the Dominion experimental farms.

It is four years since the first Dominion Fruit Conference was held in Ottawa. At that time it was generally understood that another conference would be held within the next two or three years. In fact, Hon. Sydney Fisher announced that such would be the case. There is need that another such conference should be held. The fruit growers of the Dominion of Canada have been expecting Hon. Mr. Fisher to call such a conference. Arrangements for it should be commenced without further delay.

PUBLISHERS' DESK

The illustration on our front cover shows the garden of Mr. A. E. Guay, Ville-Marie, Que., on the north side of the Quebec water shed.

Are you watching the steady manner in which the circulation of THE CANADIAN HORTICULTURIST is increasing? Where it was less than 9,000 at the beginning of the year, by March it had passed the 9,000 mark, by May it exceeded 9,500, and now it is within less than 300 of 10,000. We expect to pass the 10,000 mark within the next two months.

Won't you help us to do so? Tell your friends who are interested in horticulture about THE CANADIAN HORTICULTURIST. Show them that it is the only paper in Canada which will keep them posted in regard to matters pertaining to all branches of horticulture. They will be glad to see a copy of the paper.

In spite of the fact that we thought that we had made ample provision for the usual steady monthly increase in the circulation of THE CANADIAN HORTICULTURIST, the demand for copies of the April issue was such that our supply of copies of that issue is now sadly depleted. In fact even the copies that we had reserved for binding purposes have been encroached upon. If, therefore, you can spare us your copy of the April issue, we will appreciate it very much if you will be kind enough to do so, and in return we will extend your subscription accordingly.

Last month we received word of the death of one of our old friends, Mr. S. P. Morse of Lowville, Ontario, whose photograph was published in the April issue of THE CANADIAN HORTICULTURIST. Mr. Morse had been a reader of THE CANADIAN HORTICULTURIST from its birth, some 33 years ago. Although in his 91st year, his interest in horticulture was keen until the very close of his long career. As late as the 10th of May Mr. Morse manifested his interest in THE CANADIAN HORTICULTURIST by sending us a new subscription. During the past five years Mr. Morse had sent us over 60 new subscriptions. In forwarding these subscriptions Mr. Morse made it clear that his object was to arouse a greater interest in others in horticultural matters. Canada can ill spare such horticultural enthusiasts. Their loss is always felt.

Advertise Persistently

"We have been very much pleased with the results of our advertisements in THE CANADIAN HORTICULTURIST. We consider it by far the most valuable advertising medium which we use."—The Canadian Nursery Co., Ltd., Montreal, Que.

The foregoing extract from a letter received from one of our advertisers is a sample of what other advertisers tell us. It did not merely "happen." Also it came unsolicited. In this case, this voluntary testimonial of the value of THE CANADIAN HORTICULTURIST as an advertising medium was not written until after the paper had been given a thorough trial. The Canadian Nursery Company have had a quarter page advertisement in every issue of THE CANADIAN HORTICULTURIST for the past eight months, and so can speak from experience. It is regular, persistent advertising such as this firm is doing which pays the best. It is impossible to judge of the true merits of a publication as an advertising medium when only an occasional advertisement is run. Such advertising often brings big returns. At other times, under almost precisely the same conditions, the returns are disappointing. This is true of all publications and of all advertisements of this nature. When, however, an advertiser keeps his name constantly before the readers of a publication, they soon begin to feel acquainted with him. He stamps his name and the nature of his goods upon their minds. Finally they think of him whenever such goods are mentioned or thought about. They know that he is in the business to stay, and, being thinking men and women, they invariably give him the preference over the spasmodic advertiser, whom they are apt to feel that they know but little about. Therefore, advertise regularly and persistently.

Visitors Welcome

Call at our Nurseries while plants are in bloom and make selection for fall planting.

Magnificent display of Paeonies

200 Varieties of Hardy Perennials,
100 Varieties of Flowering Shrubs.

SOMETHING ALWAYS IN FLOWER

Canadian Nursery Co.

LIMITED

10 PHILLIPS PLACE
MONTREAL

Nurseries at Pointe Claire, P. Q.

FRUIT BOXES OF EVERY DESCRIPTION

APPLE BOXES A SPECIALTY

Up-to-Date Fruit Packers
Use Our Goods

MADE UP AND IN SHOOKS

WRITE US

The Firstbrook Box Company
TORONTO

Limited

Fruit Growers Profiting Through Co-operation

A MEETING of the Co-operative Fruit Growers of Ontario was held in Toronto on June 14. This organization represents the various co-operative fruit growers' associations of the province. The meeting was not as well attended as the one held in 1909. A late season and consequent rush of work accounted for this difference, as was evidenced by the letters sent by those who could not attend.

The supplies committee reported that the Association had handled this year approximately \$4,000 worth of such goods as spray pumps, hose, copper sulphate, arsenate of lead, sulphur, lime concentrated lime sulphur, packages, fertilizers, etc. Eighteen of the local associations purchased more or less of these goods, and considering that this was the first year that the central organization had handled the supplies direct, those of the members present were much pleased with the result. The associations were not only able to secure the goods at the lowest possible price, but in every case the materials were of the very best quality. A choice was always given in any of the materials where there were two or three kinds of practically the same quality, and the local associations could choose between them if there was any difference in price. It was felt that with all of the local associations in the province purchasing their supplies through the Provincial Association an enormous business could be worked up in this way. The managers present reported that the supply business proved to be one of the most attractive features to the members of their local associations. A vote of thanks was passed to the committee having this matter in charge.

It was decided to again issue a pamphlet giving the names of the various co-operative shipping associations with their secretaries or managers, and their probable output for the present year. Such a circular has been issued for the past three years and has been widely distributed throughout the West, in Great Britain and locally in Ontario, and is of marked assistance in attracting buyers. The pamphlet will be increased in size so as to give additional information which will be of value to prospective buyers of fruit.

WILL INCORPORATE.

The meeting decided to seek incorporation under the provincial laws for the carrying on of the general business with the local associations in all kinds of supplies and also for the sale, if found necessary, of the fruit of those associations that desire to place this matter with the Provincial Association. In many parts of the country there are fruit growers who would willingly co-operate for the packing of their apples and other fruits if the selling end of the business was arranged for them. It was recognized that a start should be made along these lines, and a circular will be issued to the local associations asking how many there are who will place all or part of their fruit with the Central Association for sale, if an efficient manager can be engaged and arrangements satisfactorily concluded for the financial end of the business to be left in the hands of the local secretary or manager.

In connection with the incorporation of the Co-operative Fruit Growers, it was decided to ask each local association to take five shares of \$10.00 each, ten per cent. of the amount to be paid down now, all local associations purchasing from \$100 to \$500 of supplies to be given a discount of two per cent. in payment for the same, from \$500 up to \$1,000 and over, three per cent., all associations placing apples for sale with

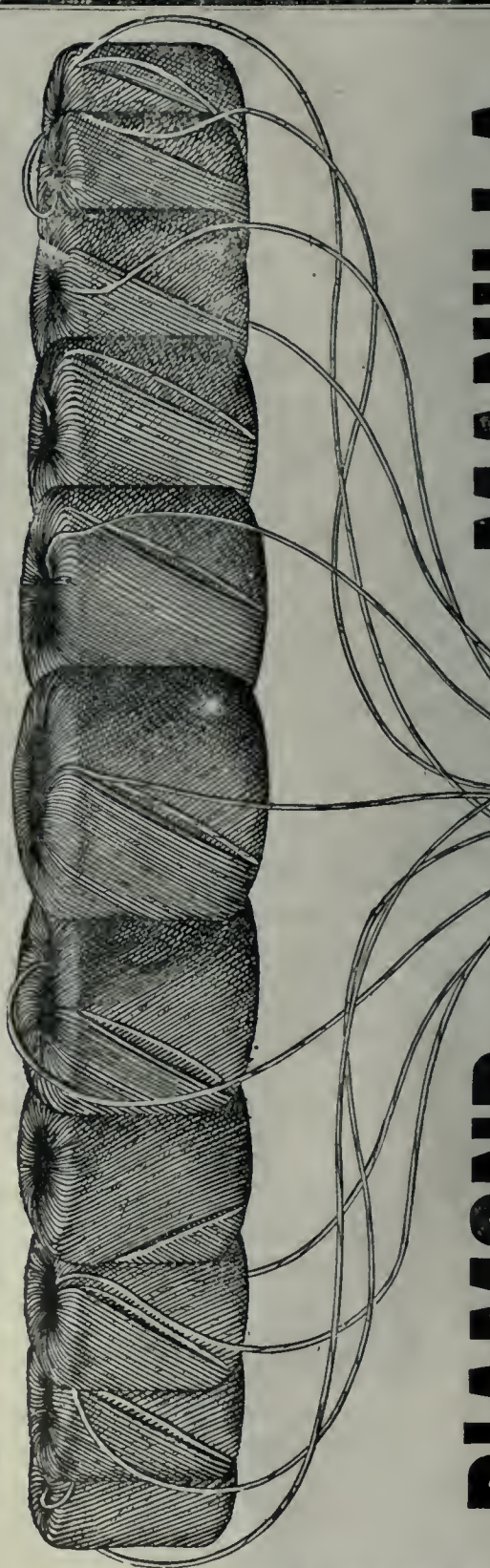
the Central organization to pay ten cents per barrel up to 1,000 barrels, nine cents from 1,000 to 2,000, eight cents from 2,000 to 5,000 and seven cents from 5,000 to 10,000 or more. Prior to the securing of the charter and the issuing of the stock, the previous arrangement whereby each associa-

tion paid a yearly fee of \$5.00 will be continued. This, of course, entitles each association to the special rates on supplies and the weekly crop reports which are sent out from the Central office.

Mr. McNeill, the Chief of the Fruit Division, Department of Agriculture, Ottawa, spoke on the requirements that would be necessary where the Central Association sold fruit for the locals. He stated that strict

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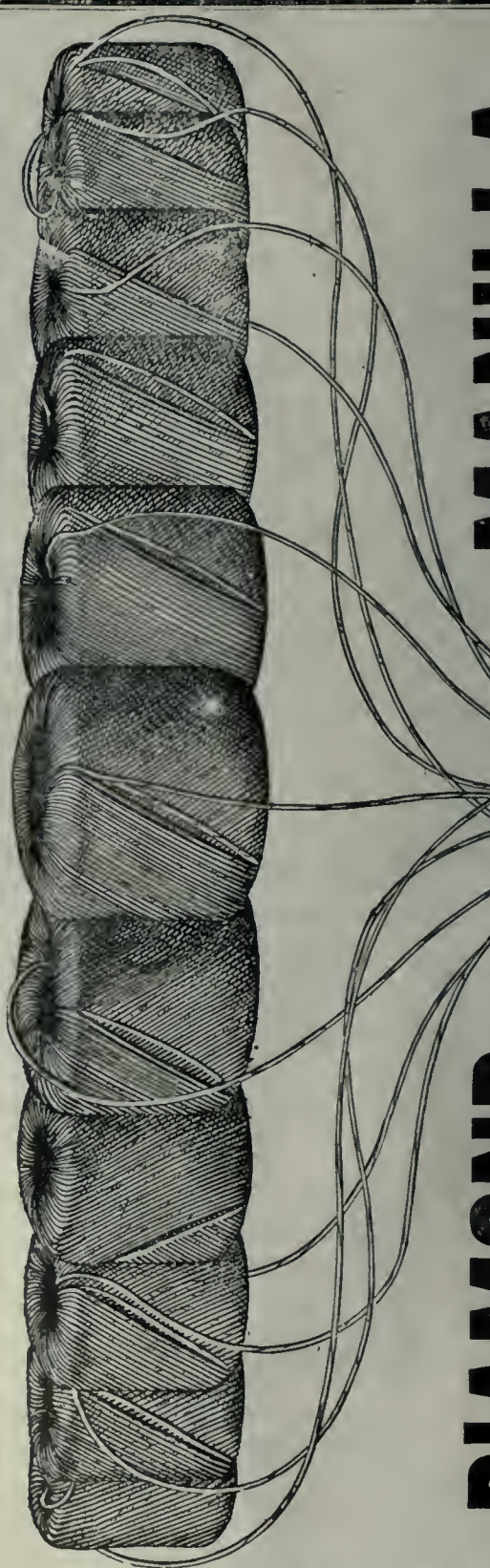
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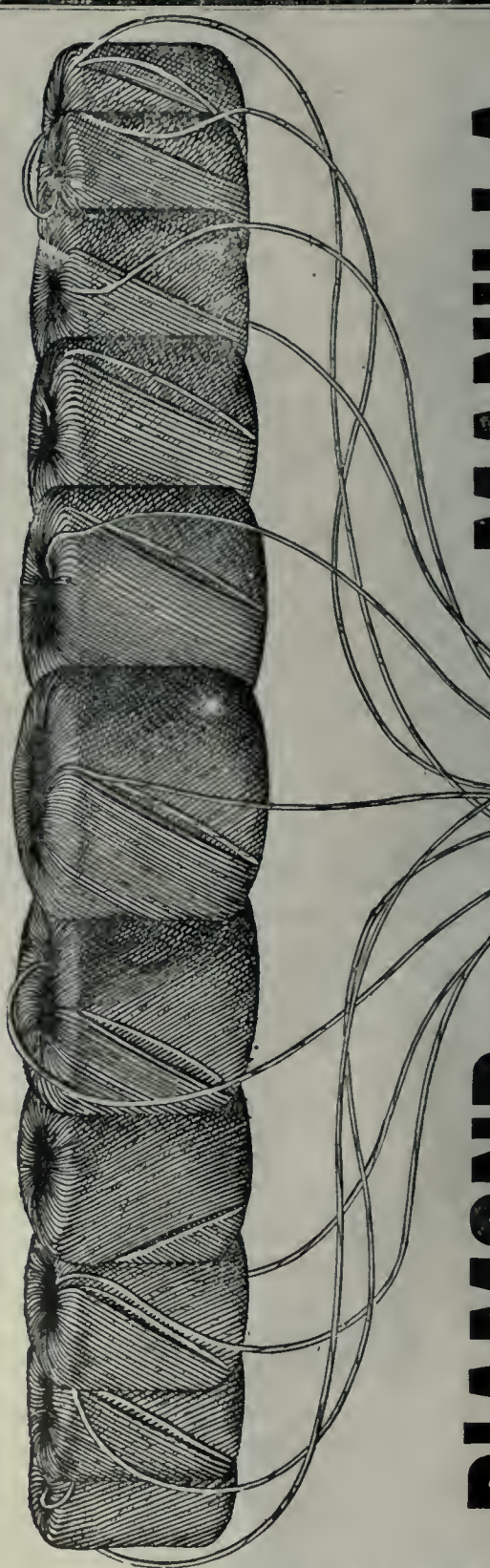
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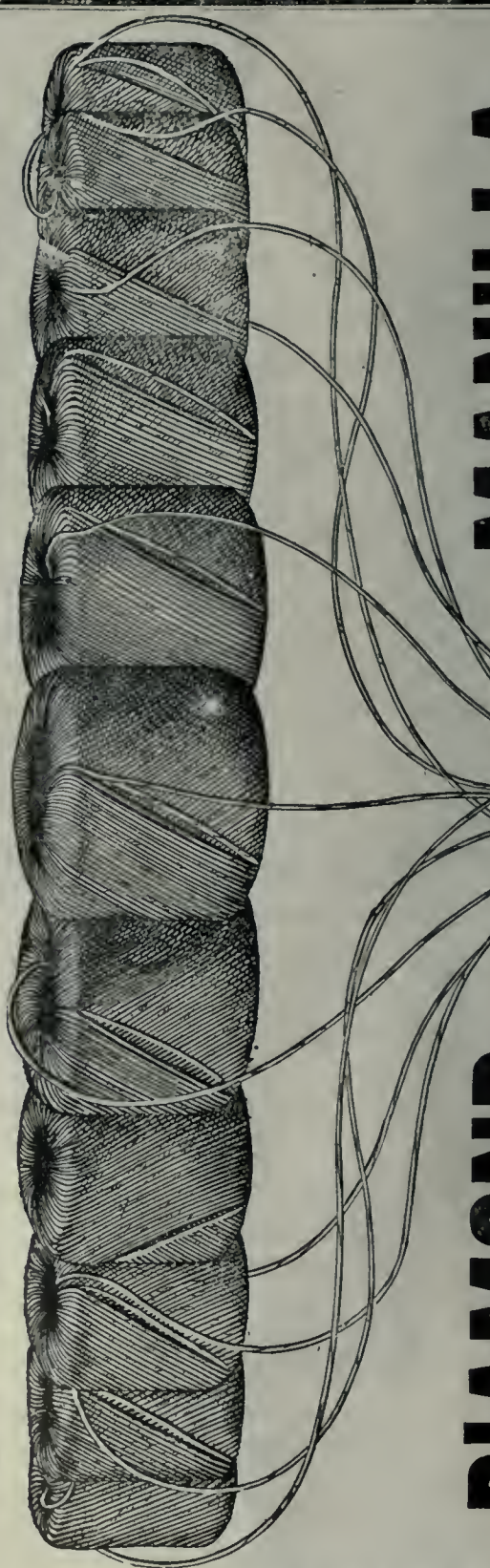
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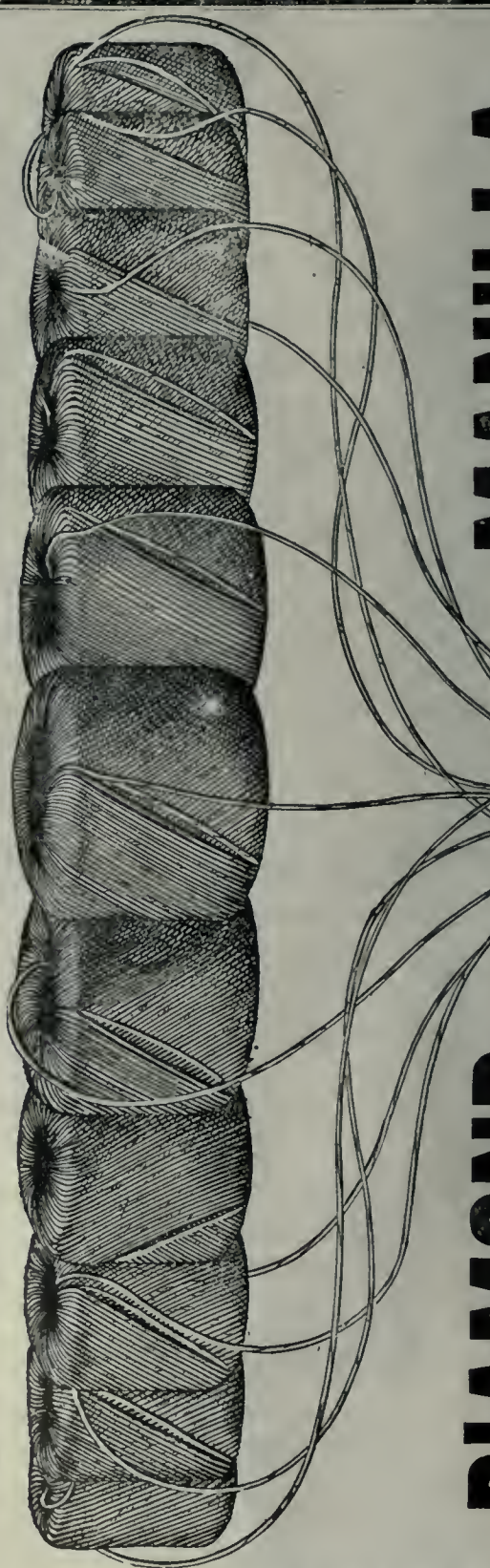
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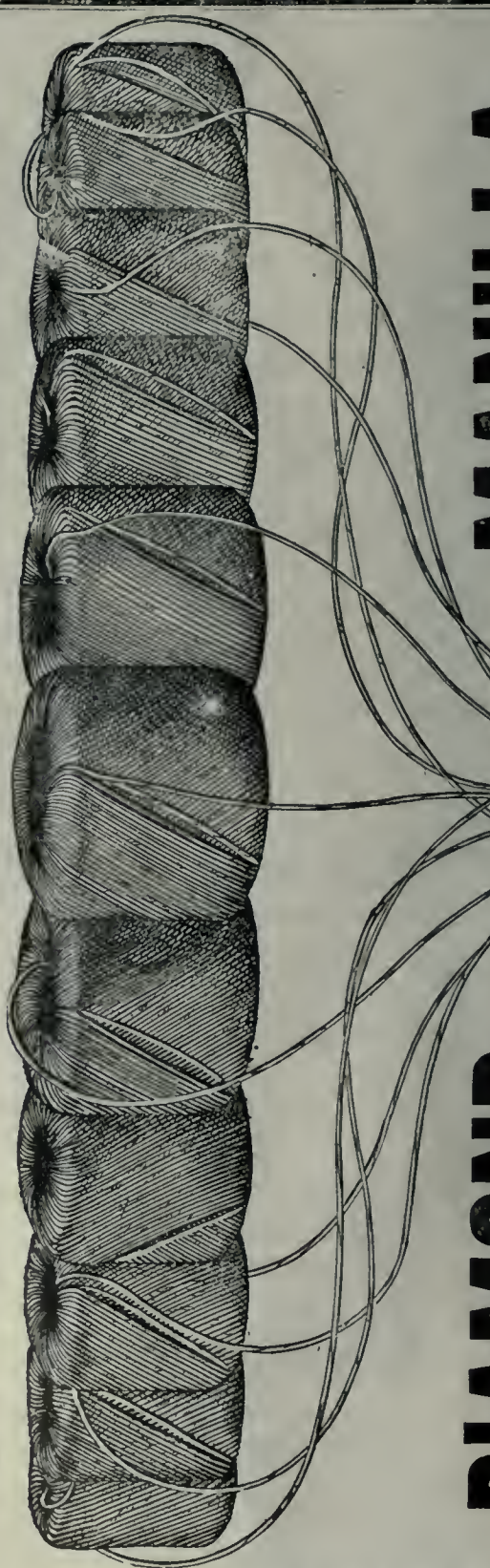
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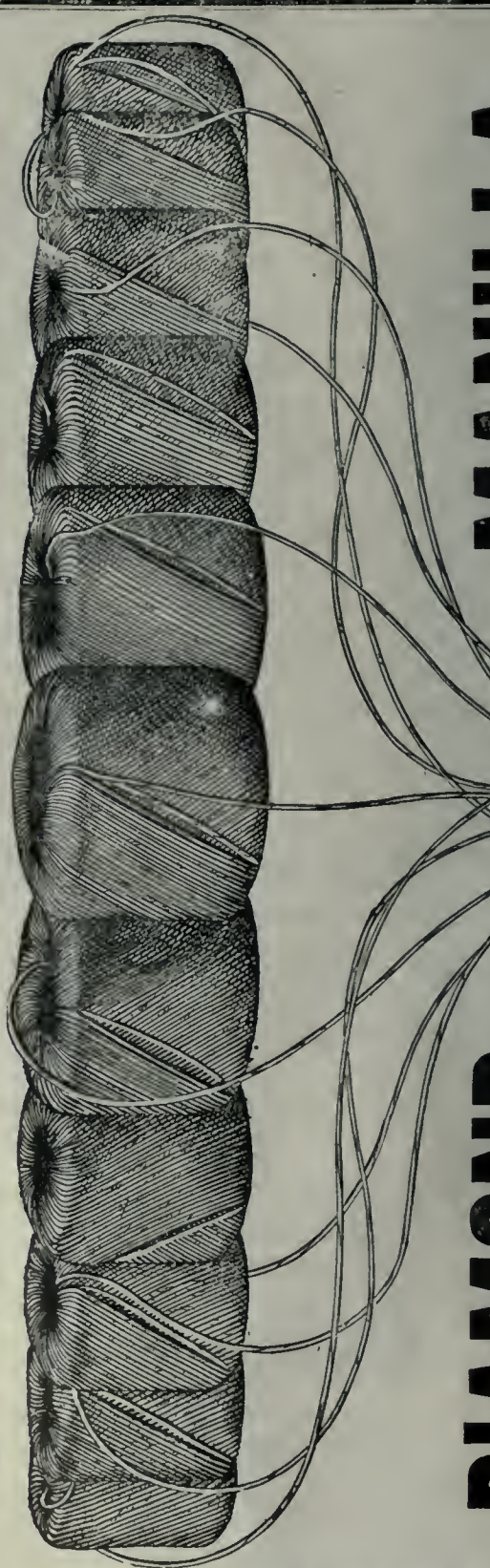
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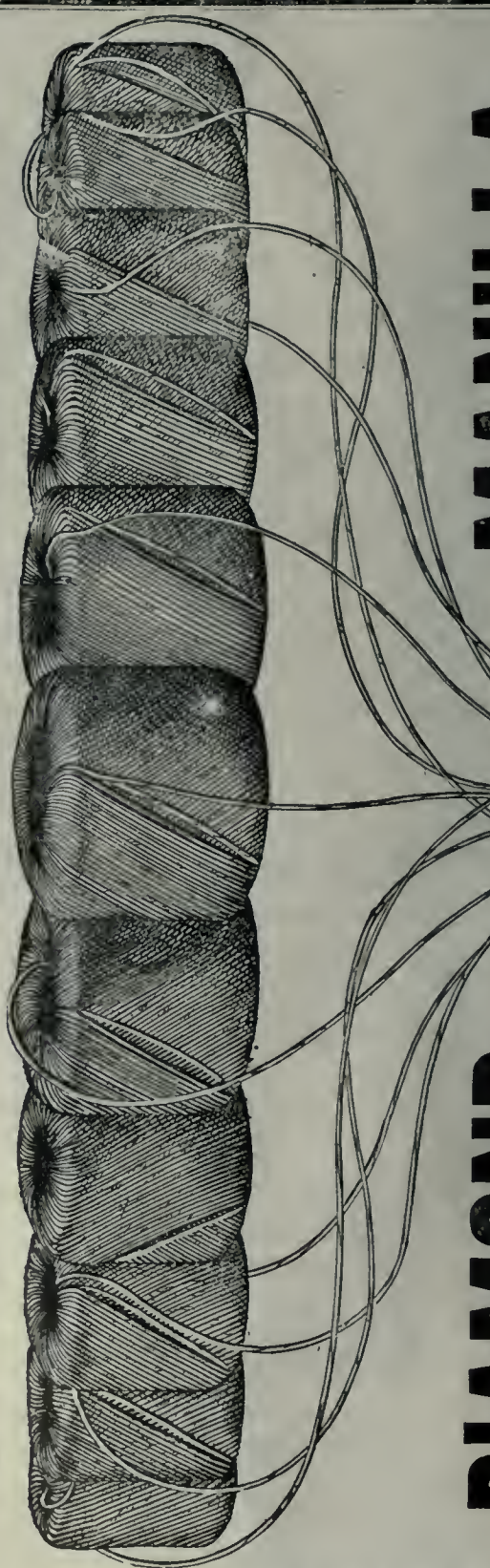
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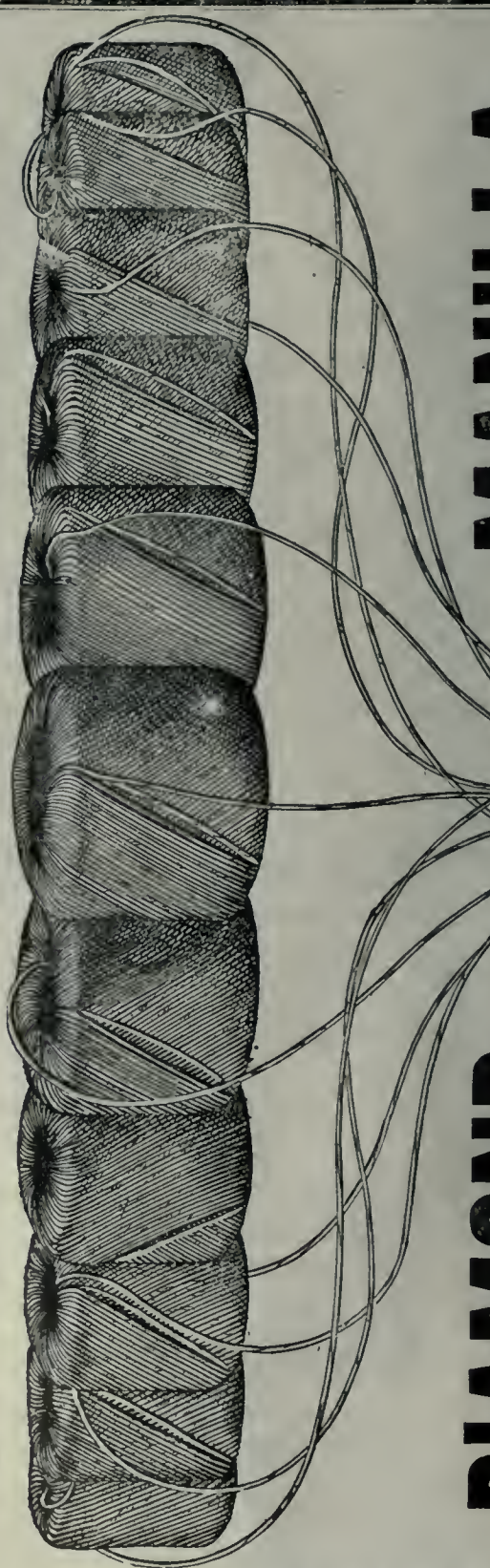
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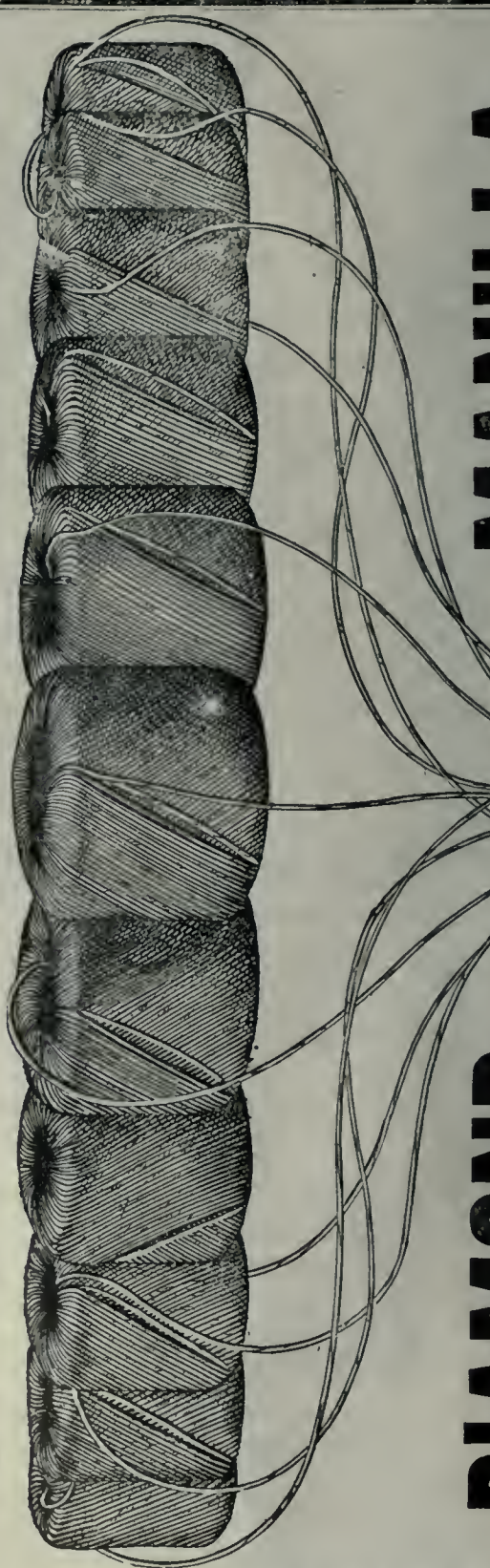
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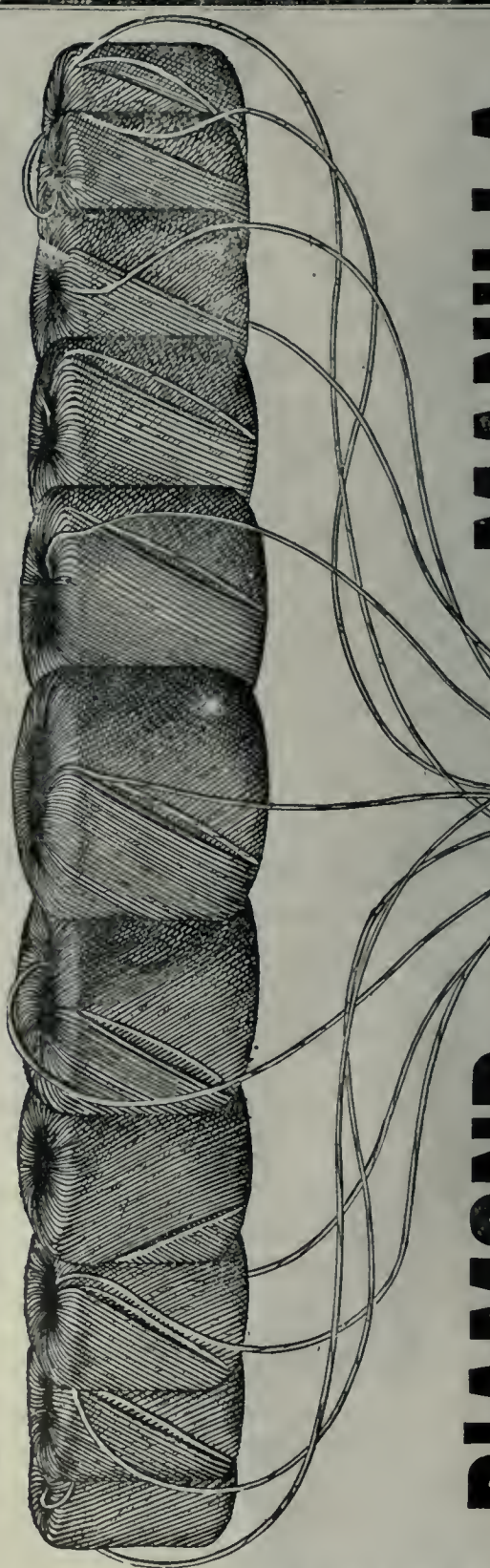
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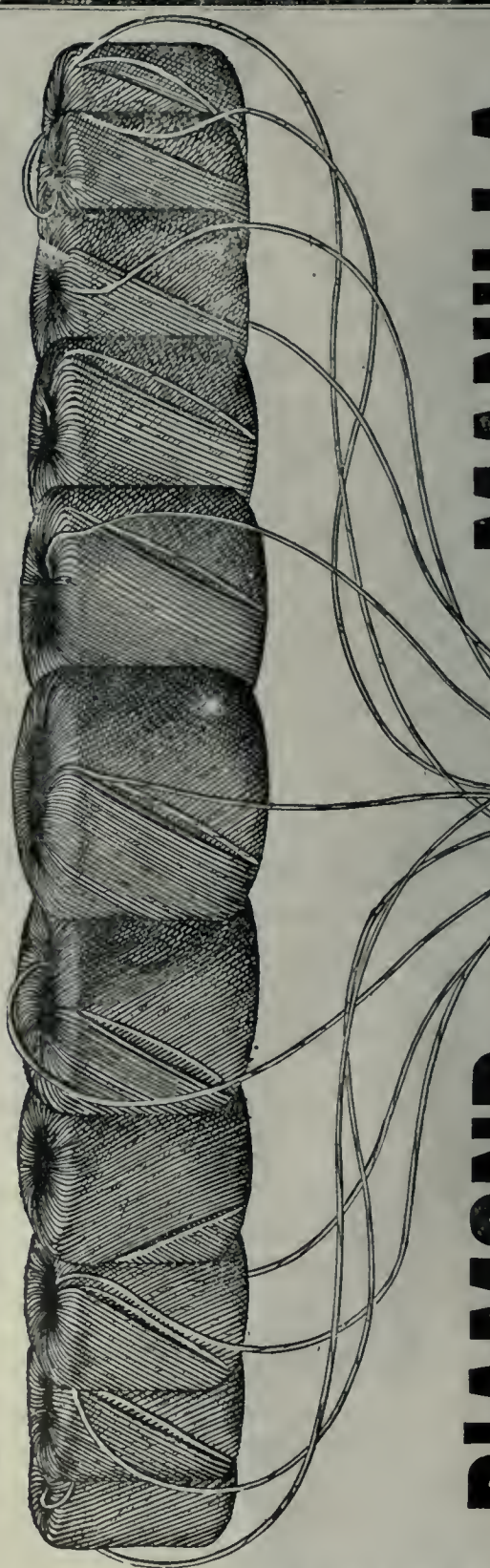
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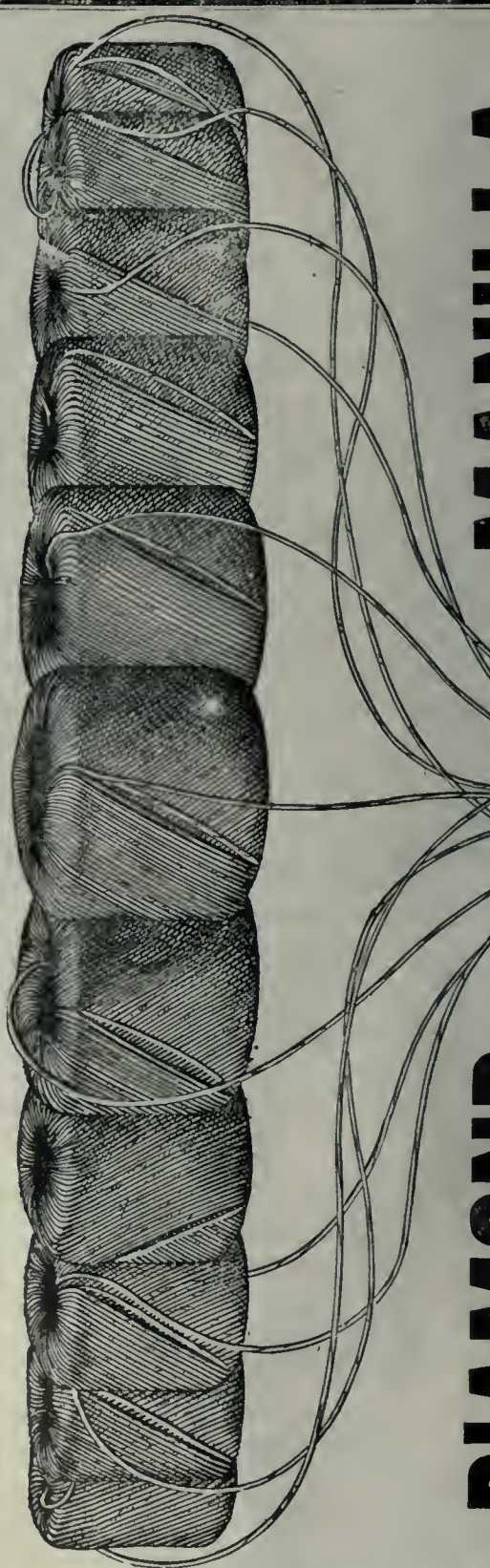
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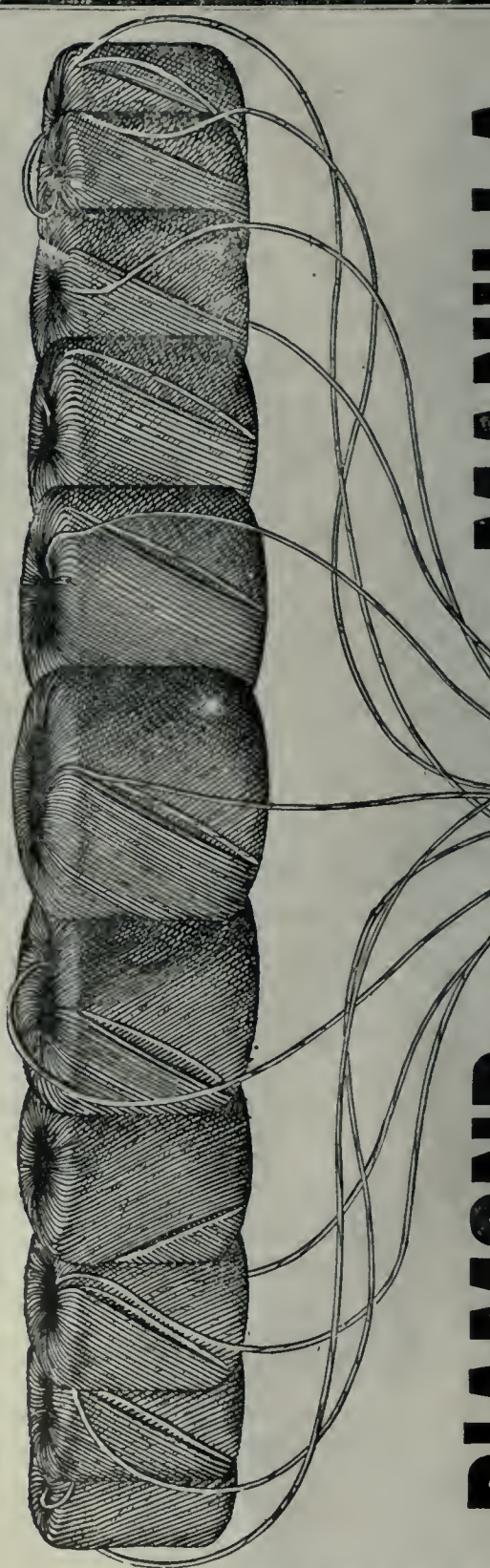
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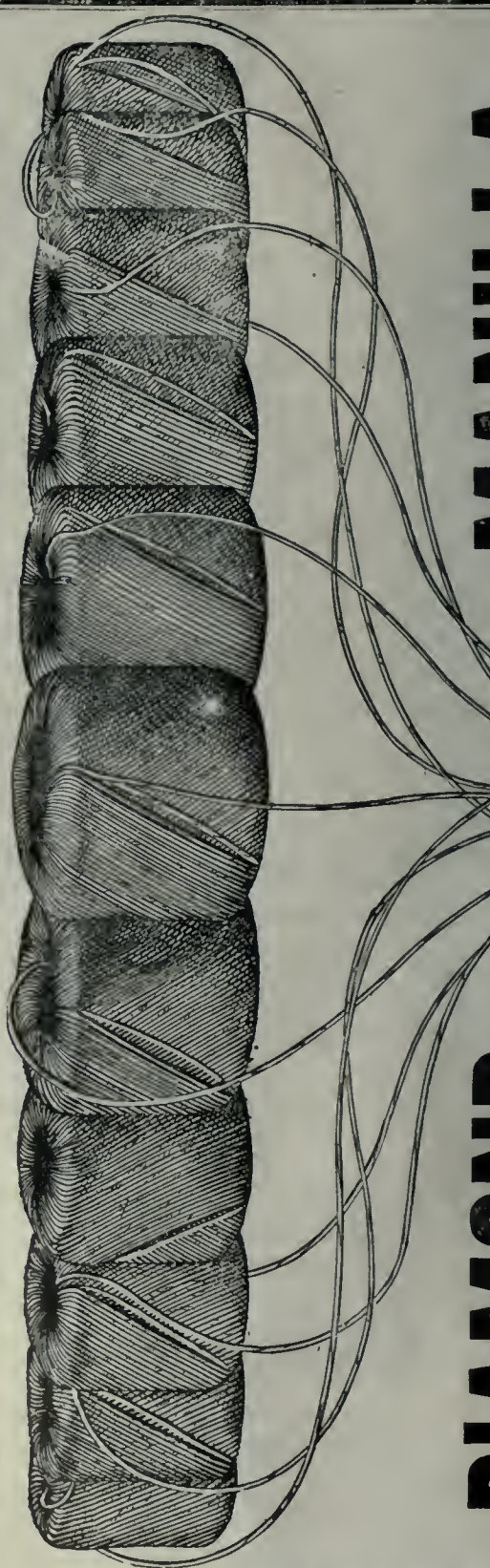
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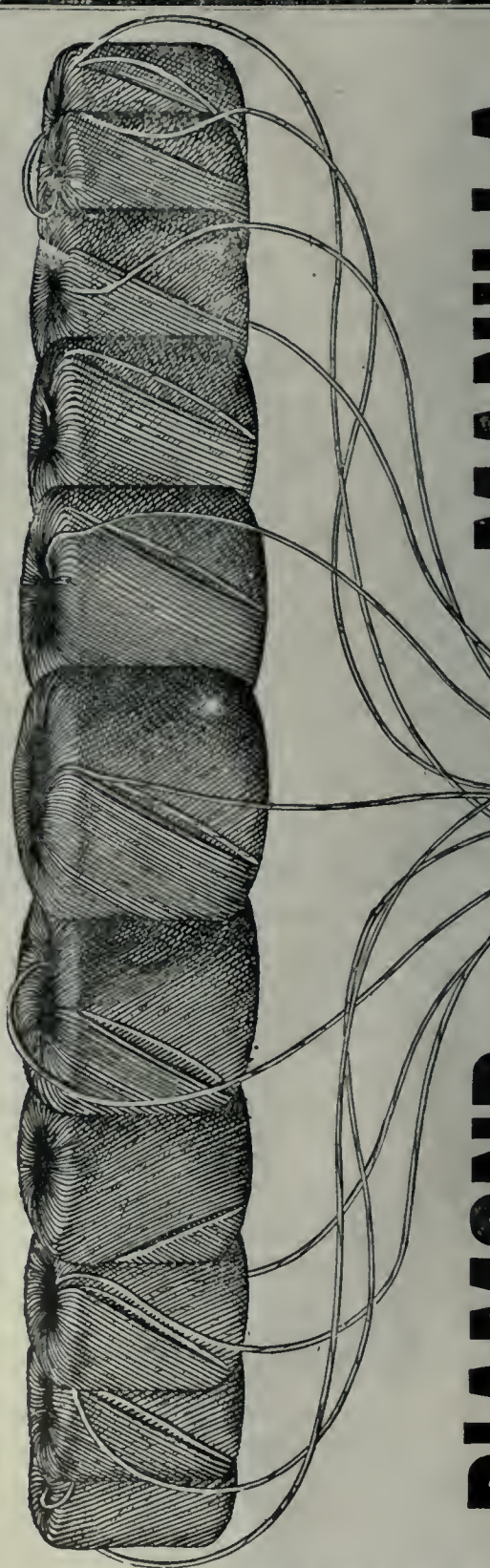
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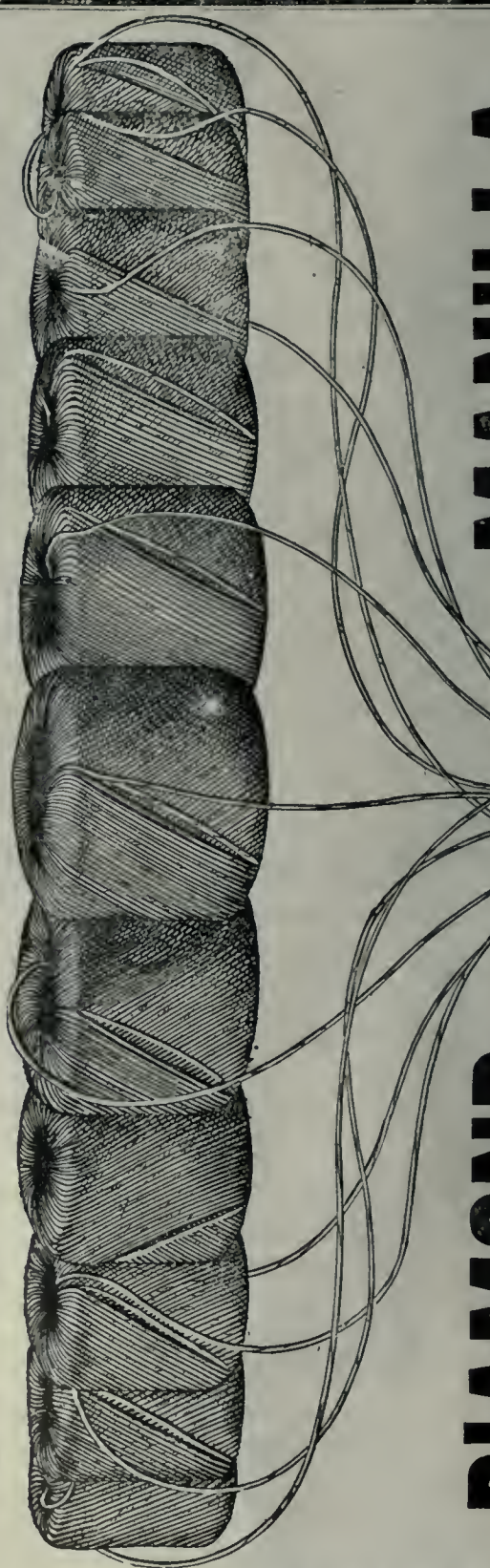
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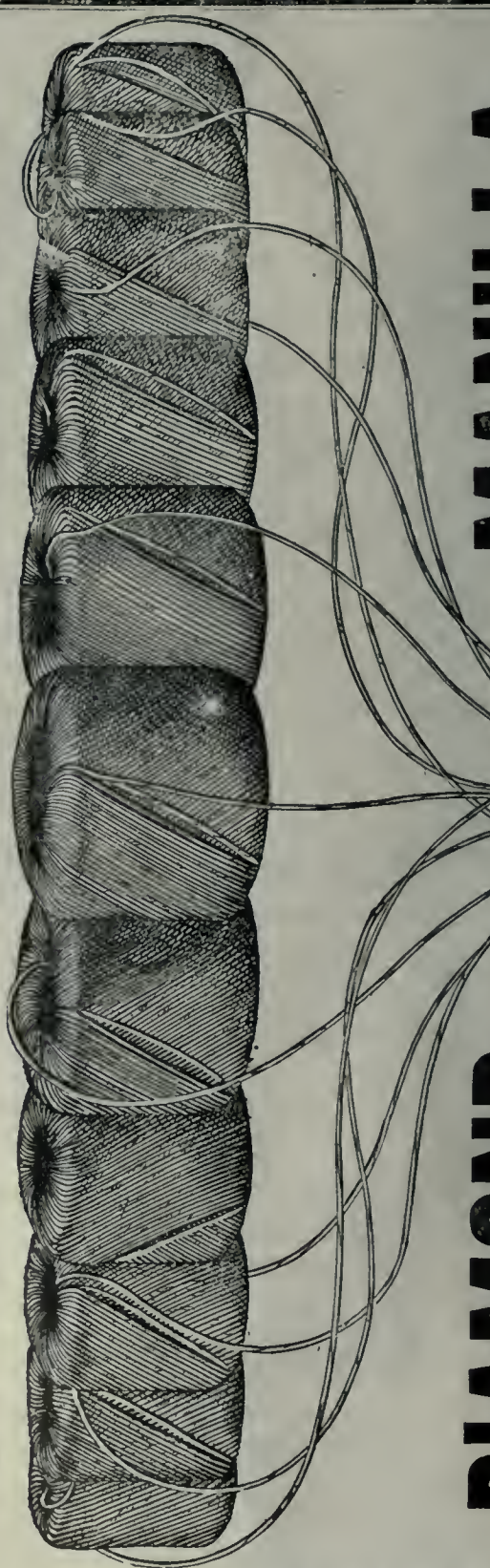
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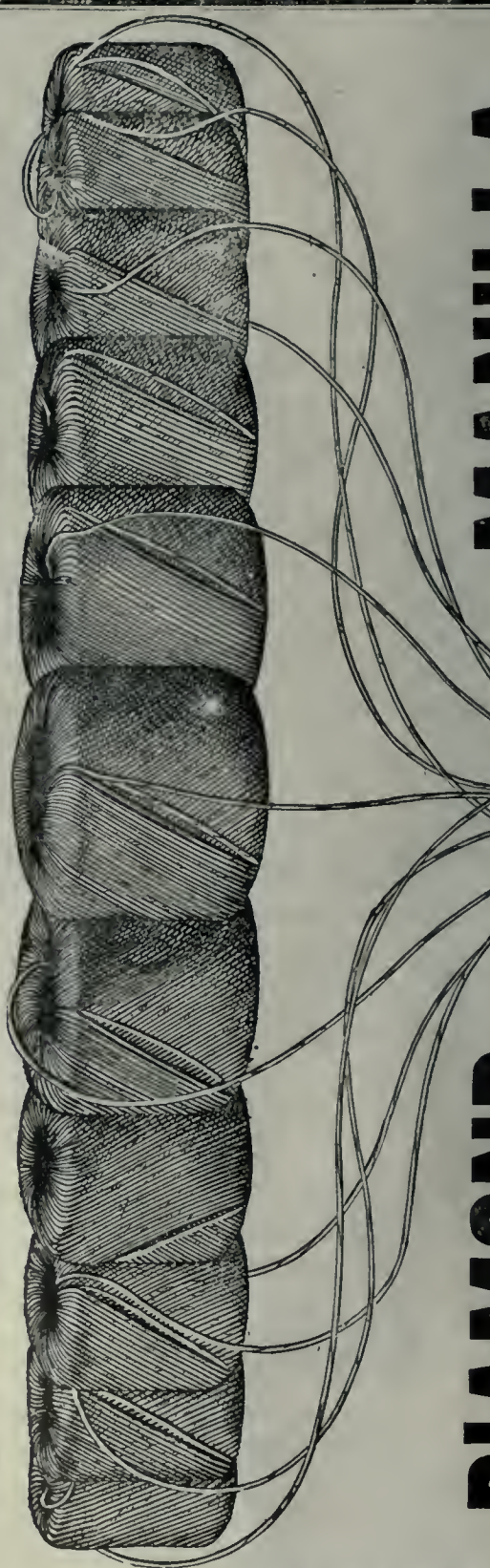
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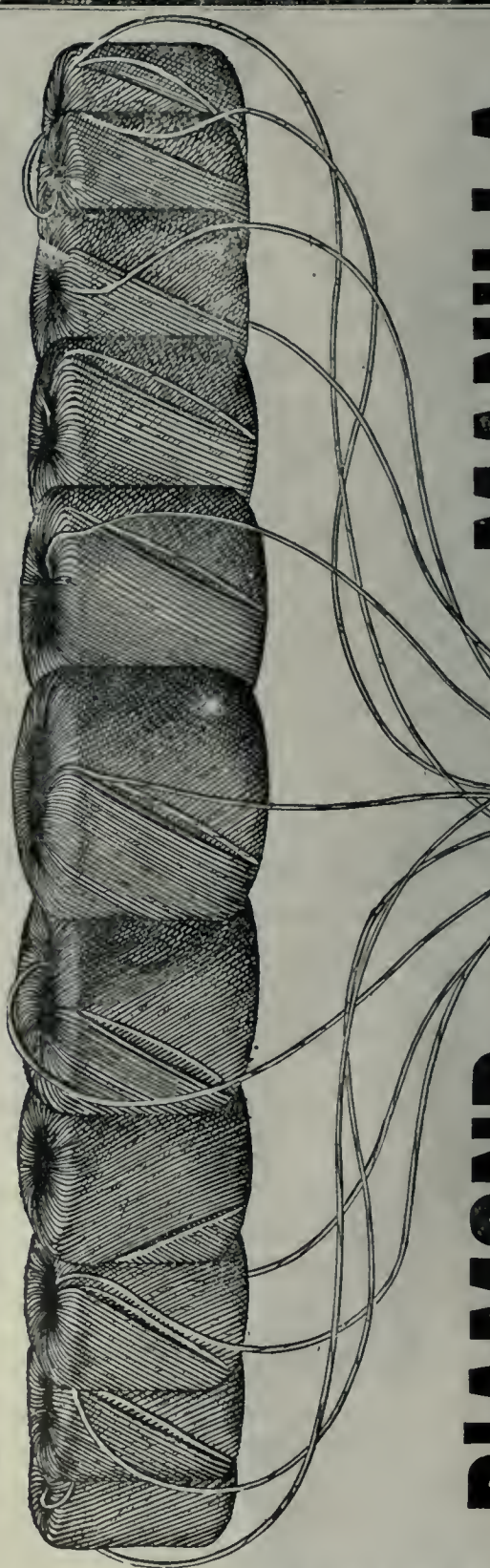
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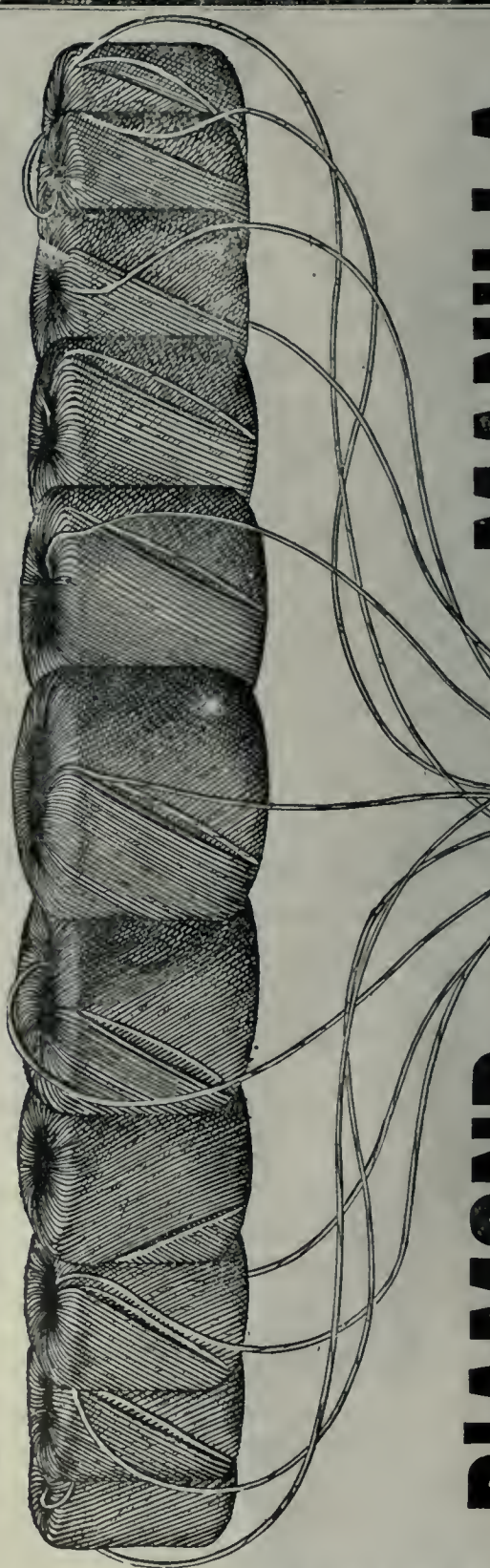
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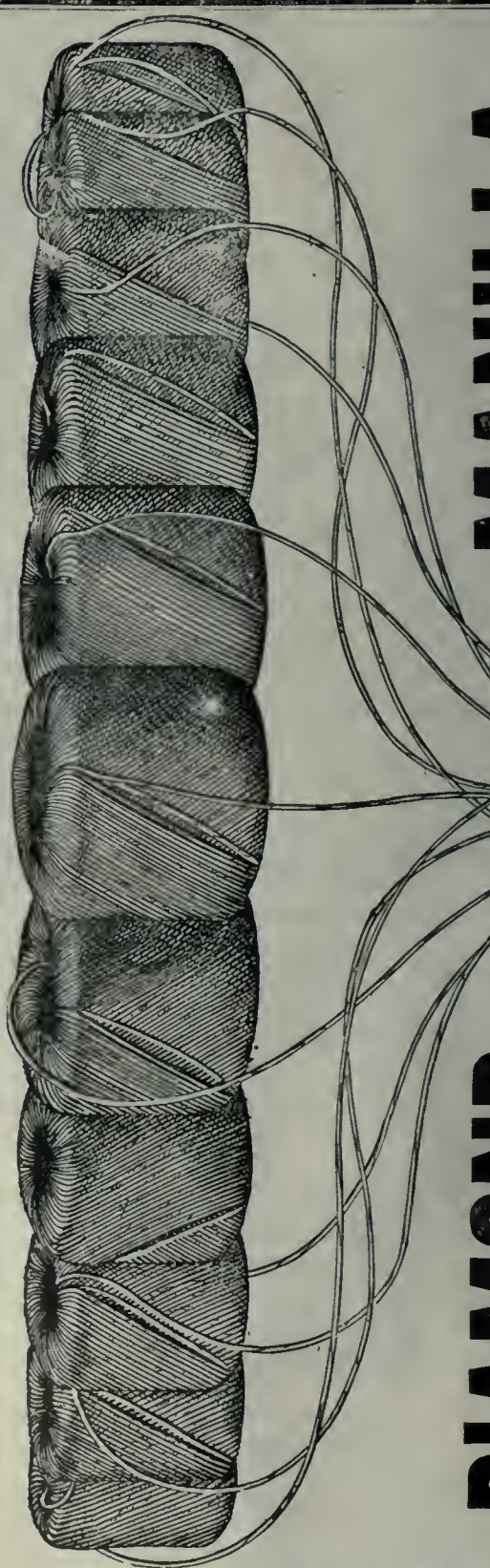
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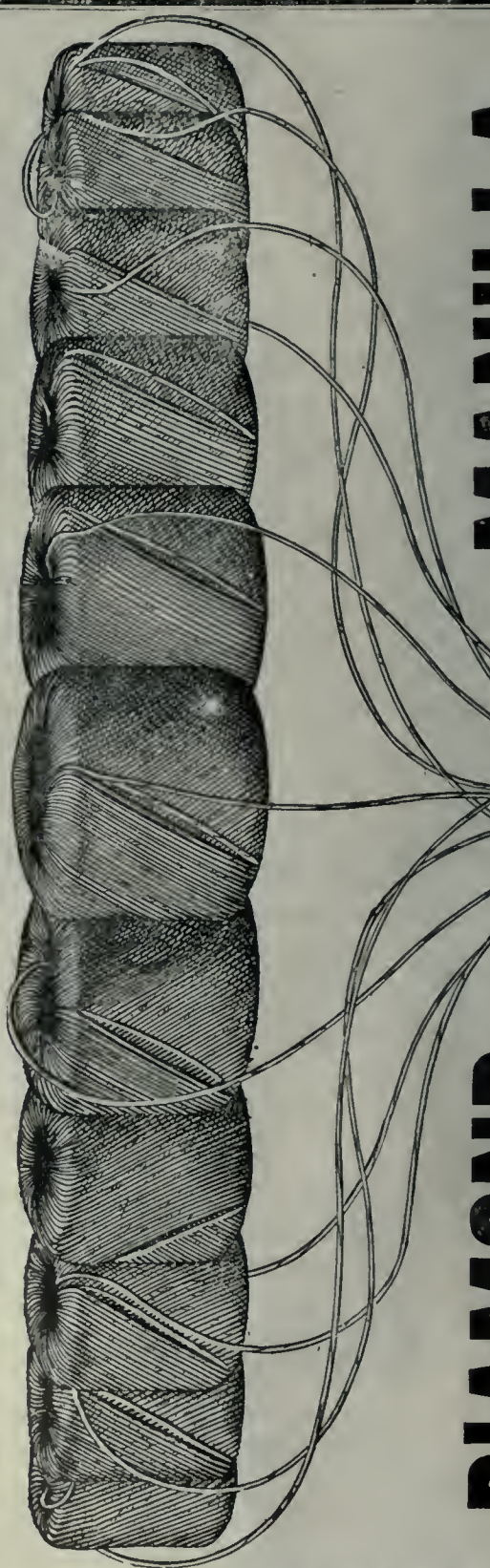
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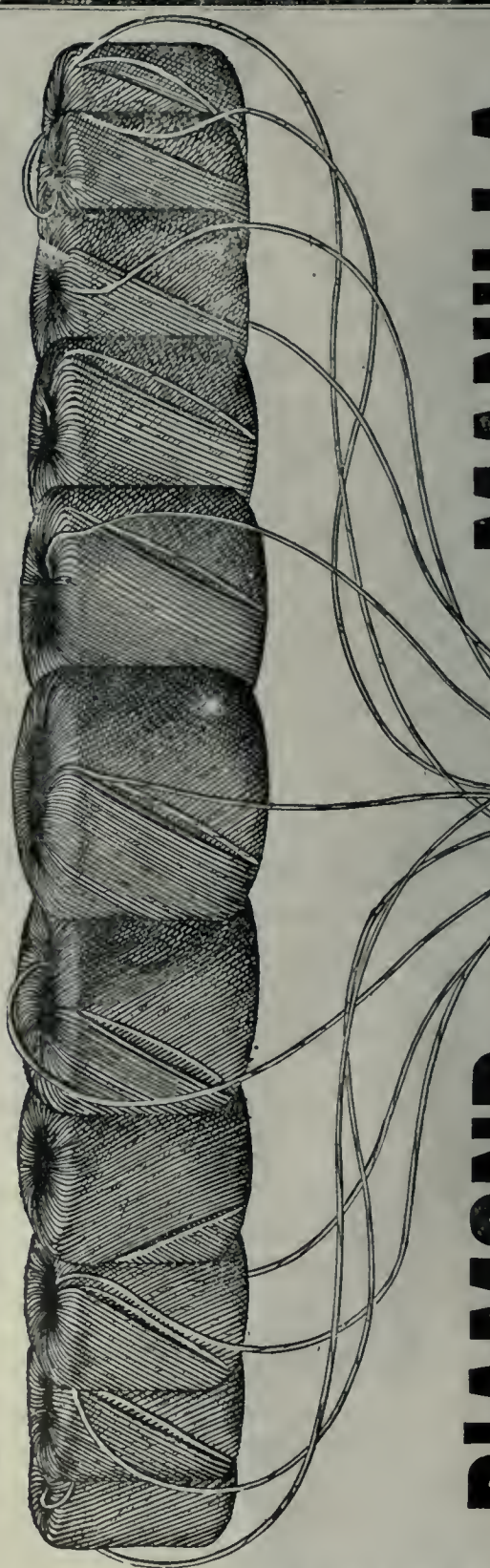
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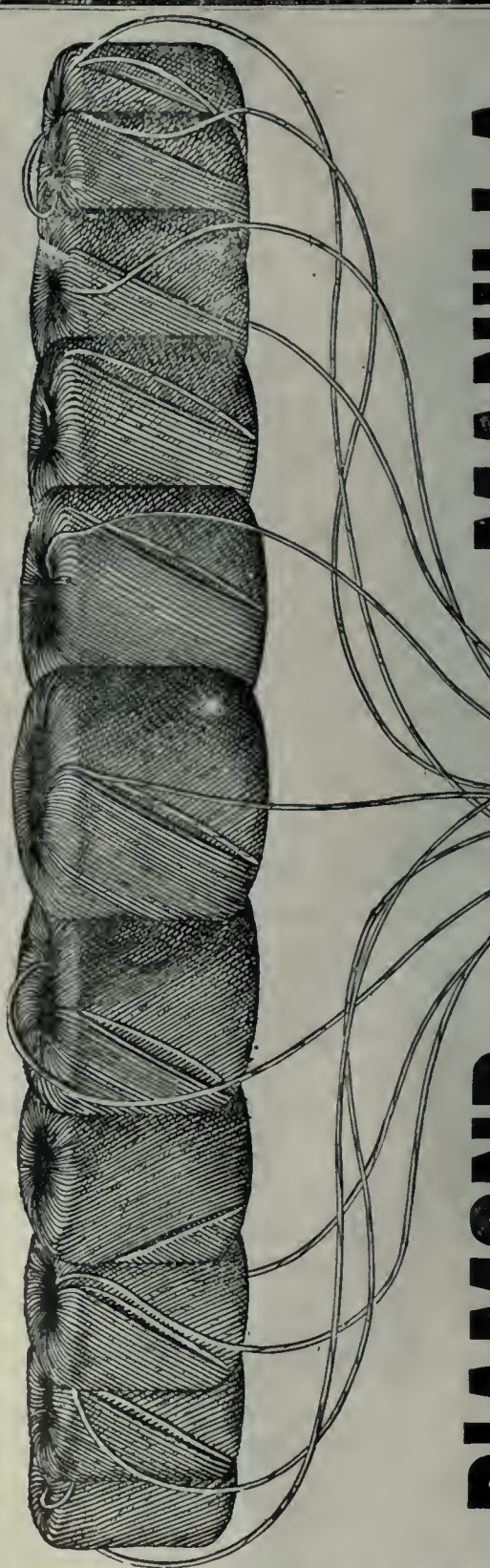
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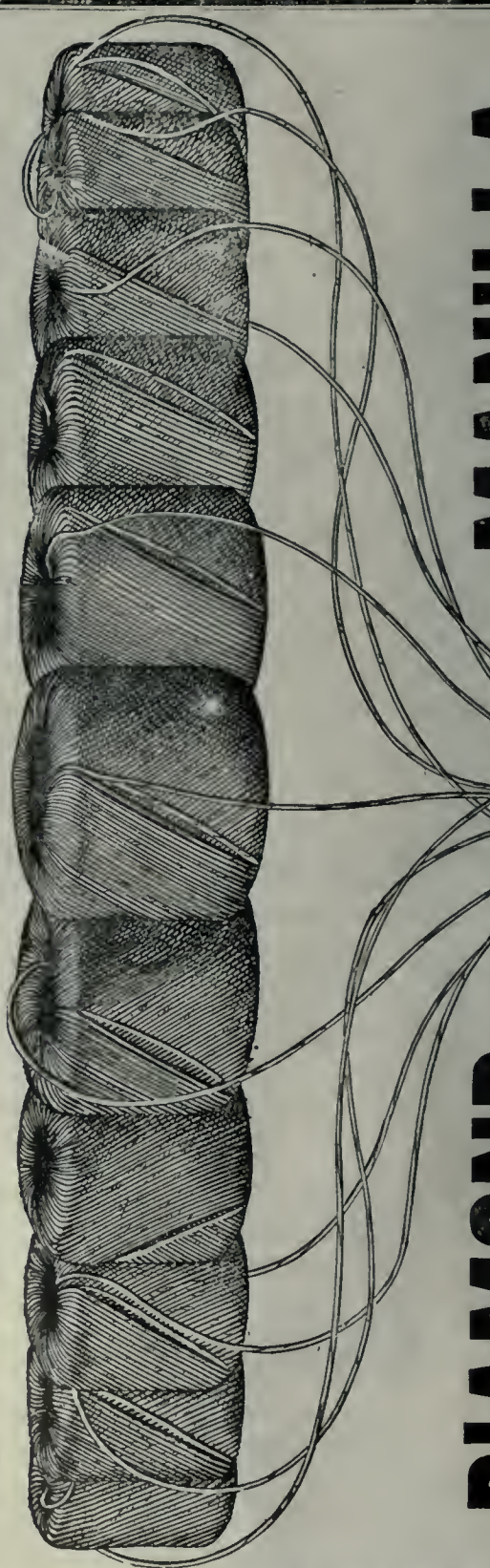
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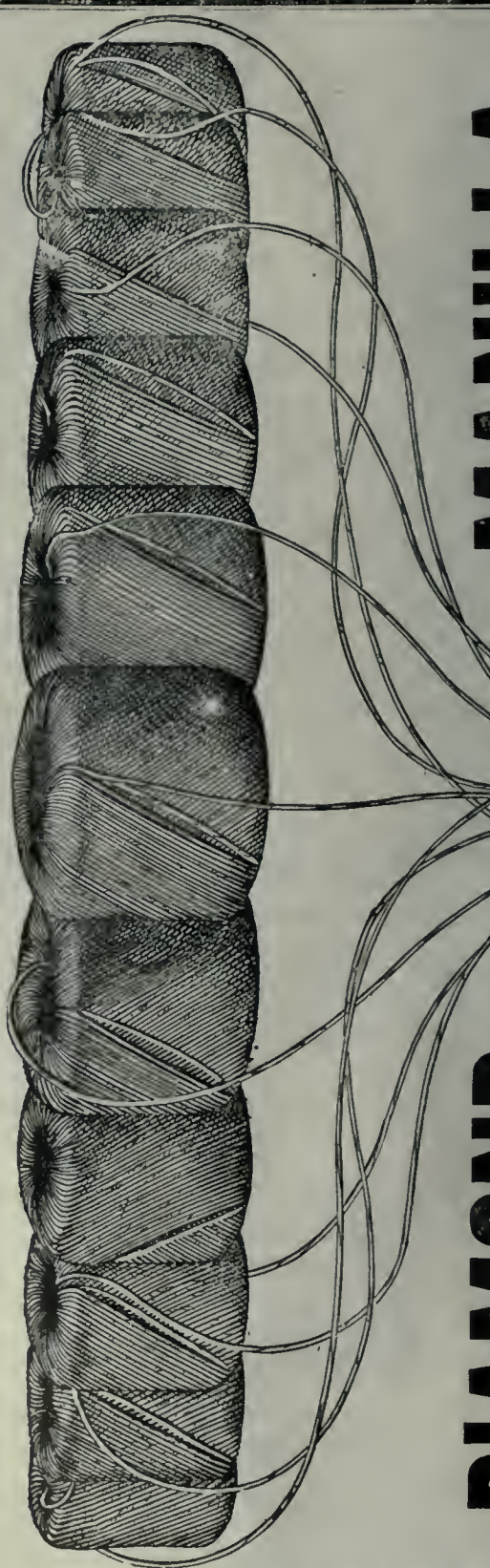
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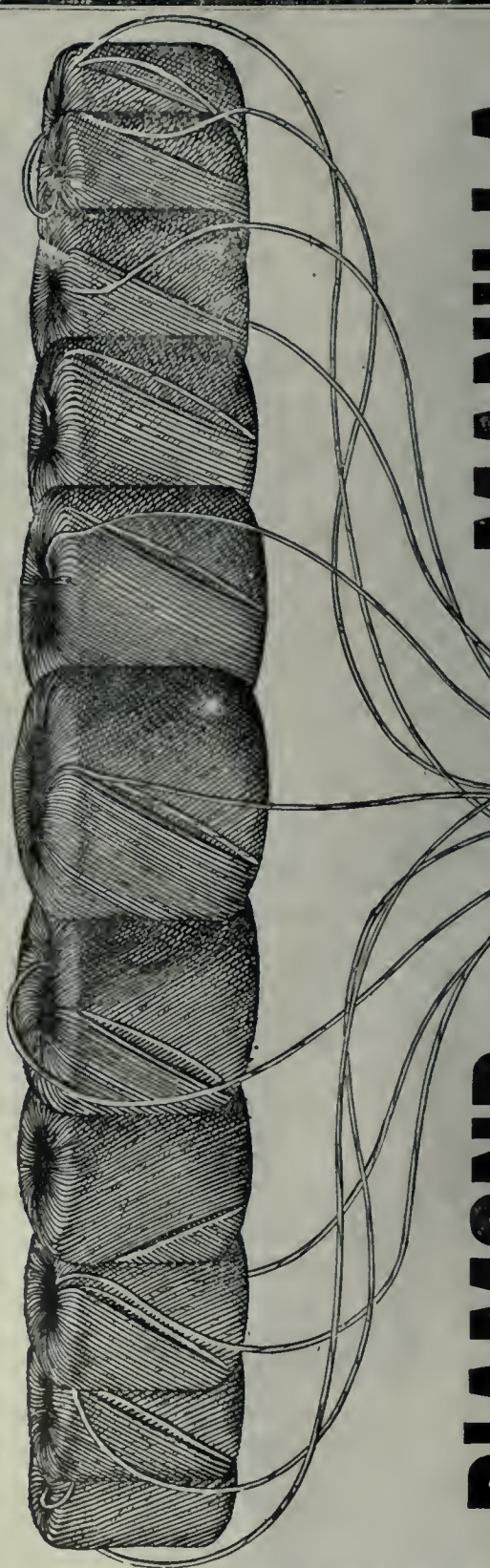
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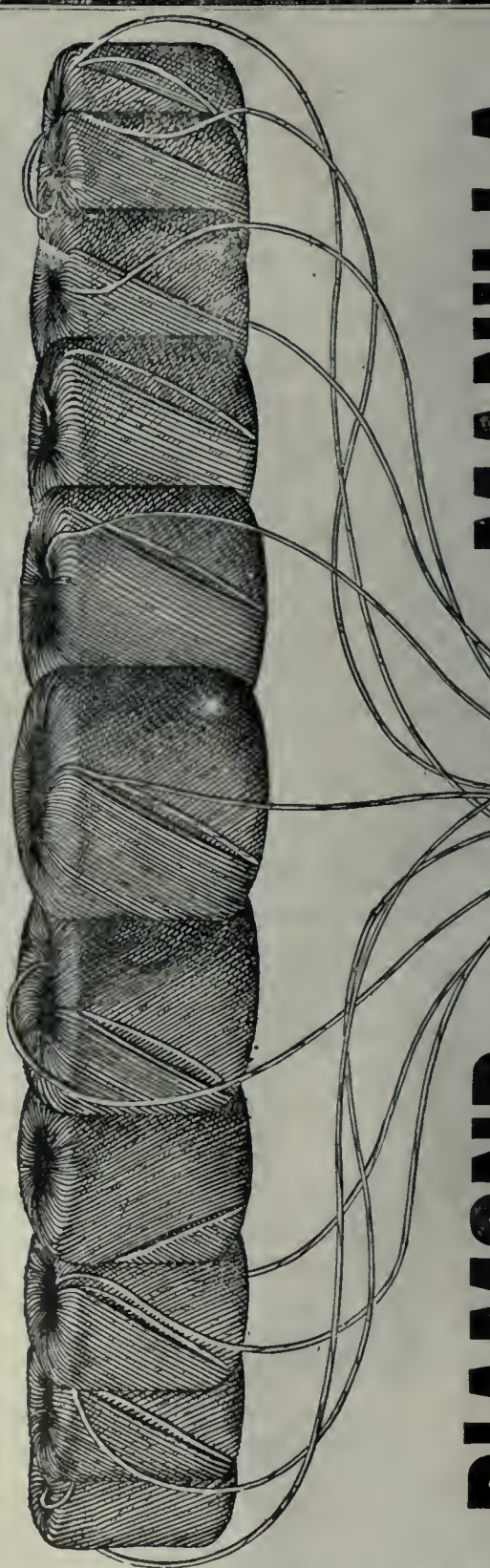
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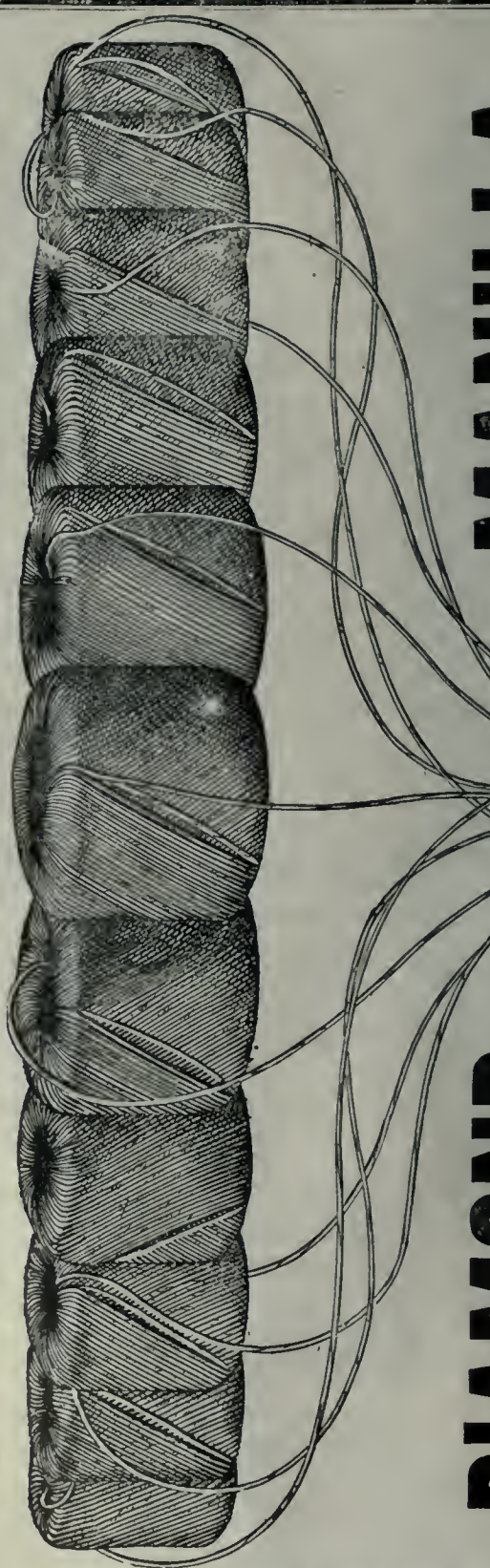
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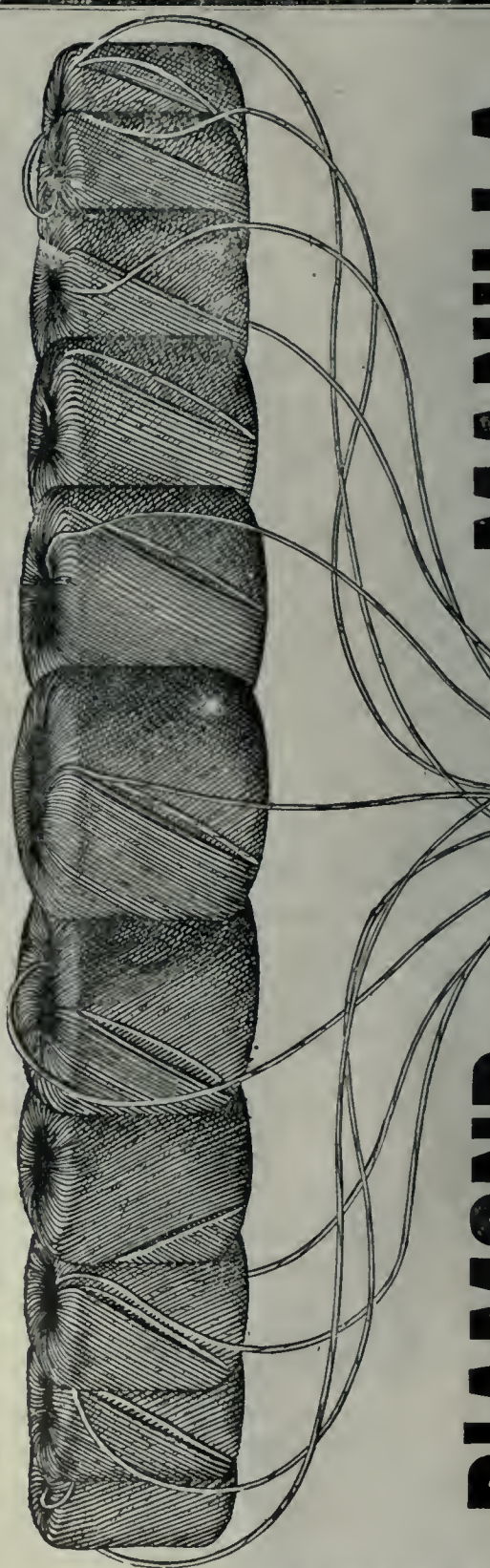
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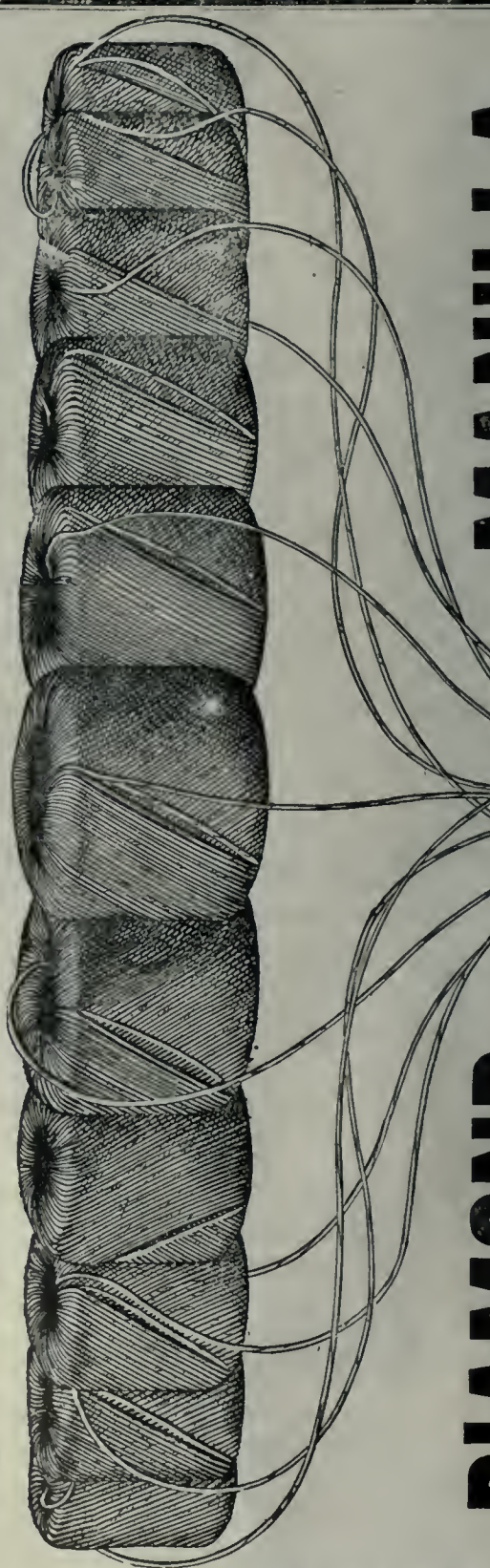
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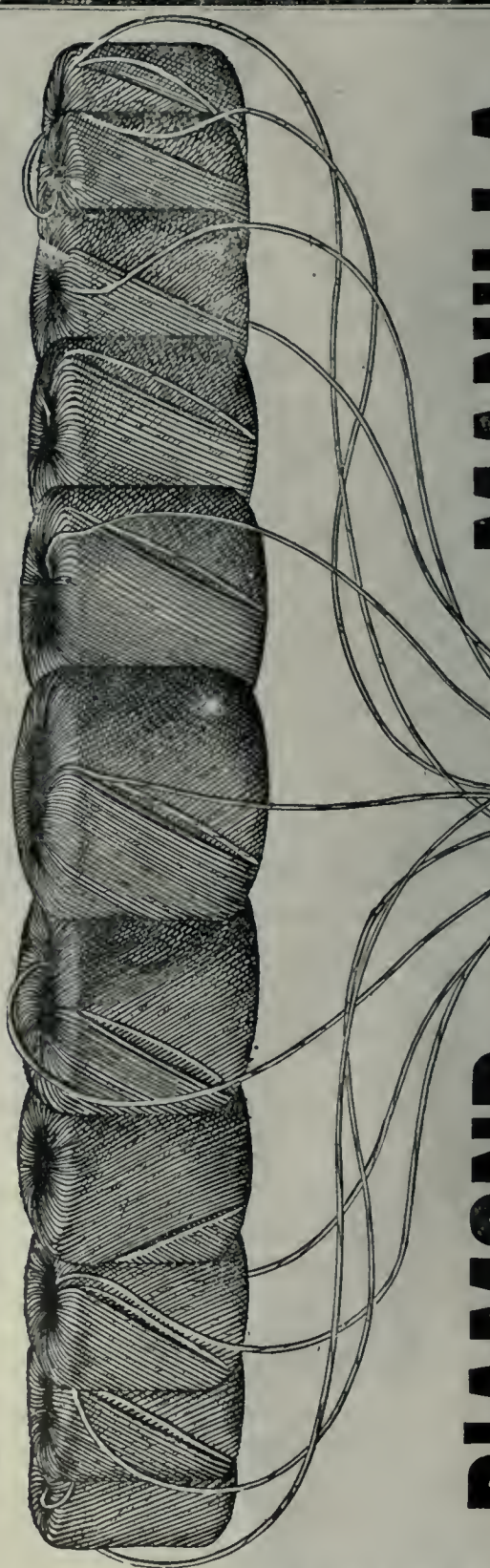
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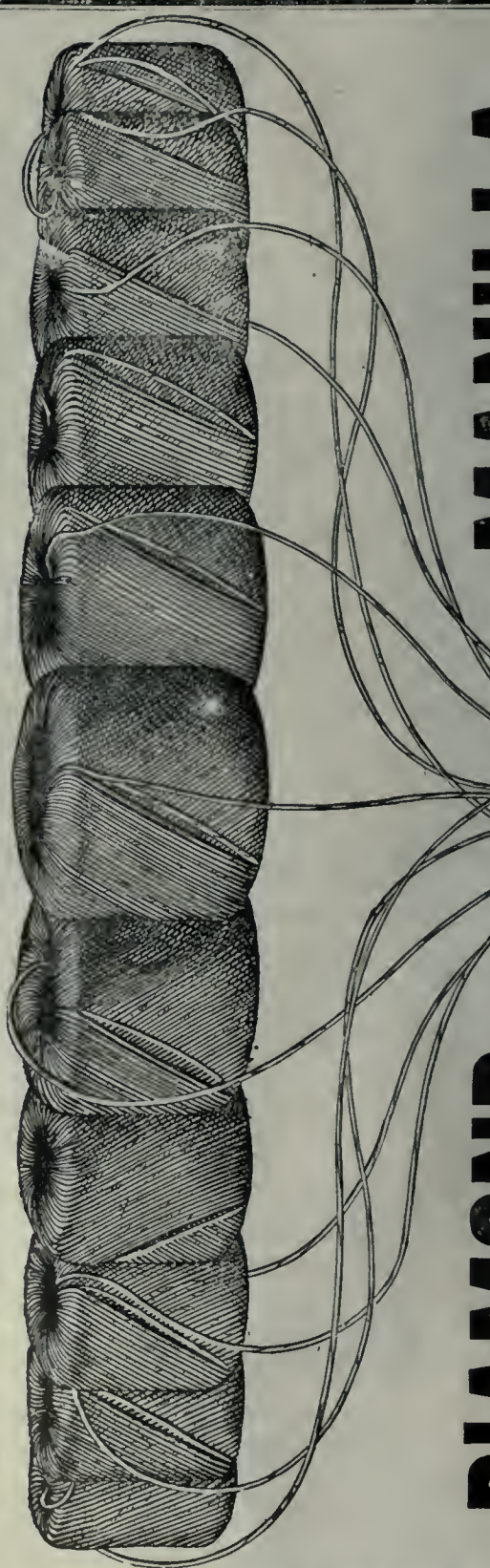
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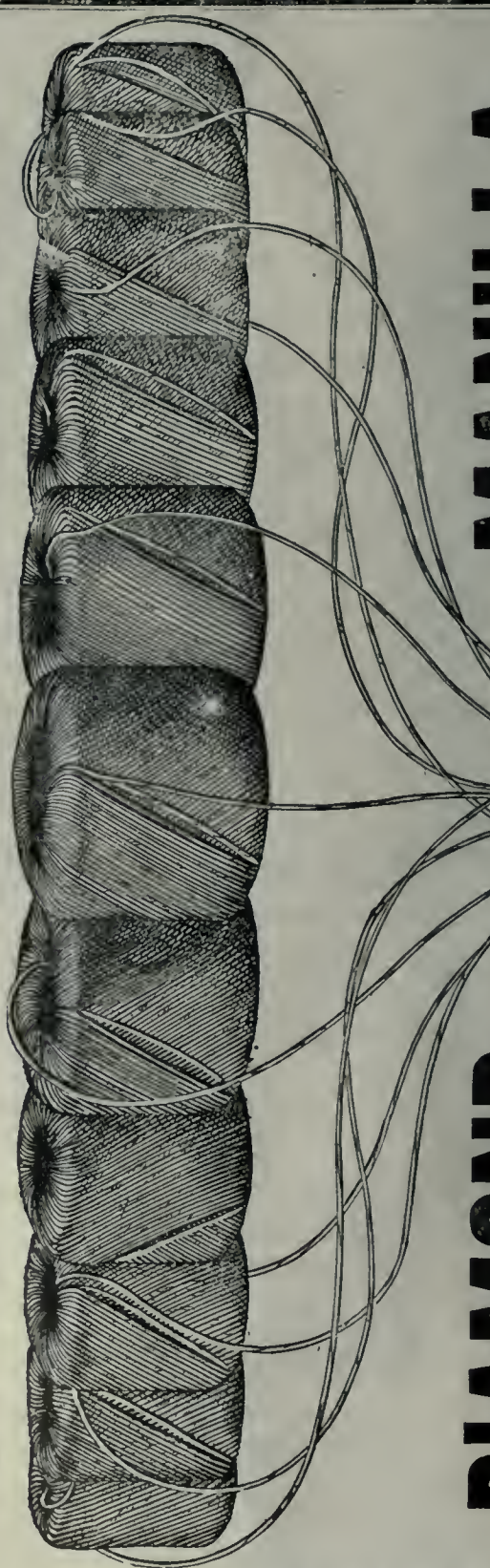
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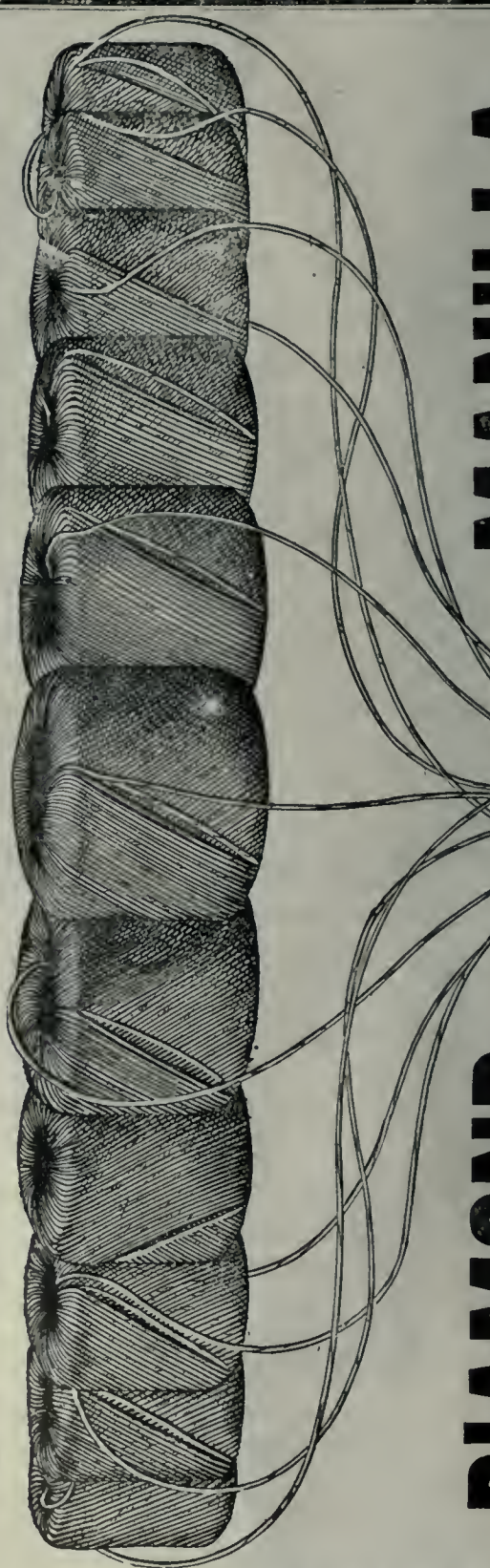
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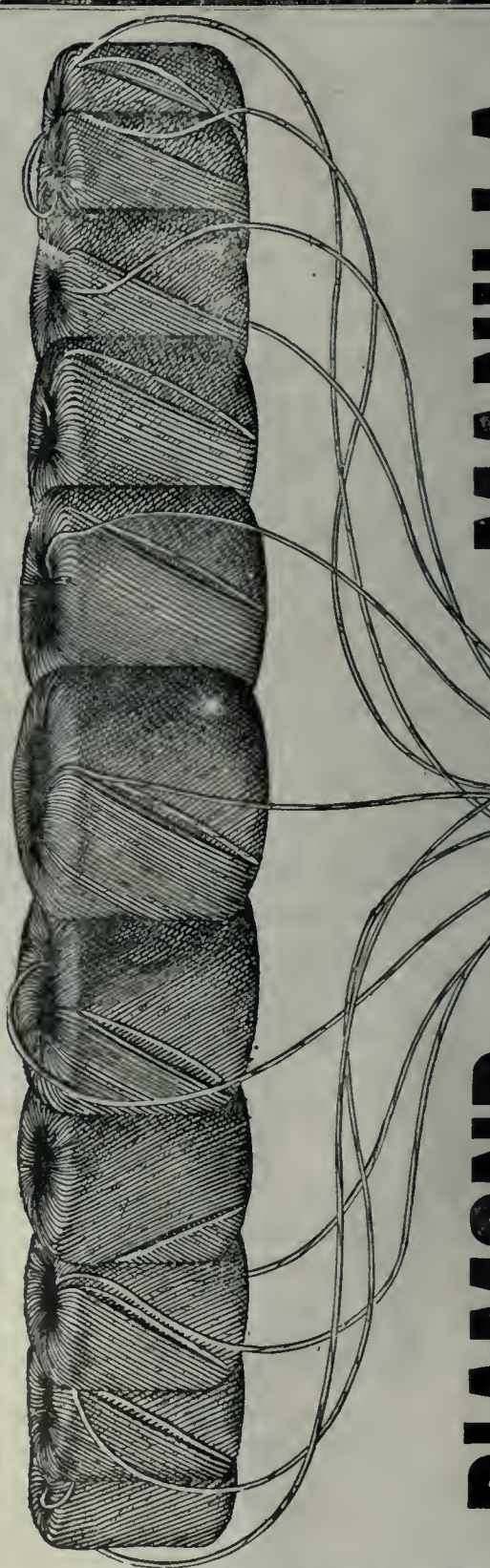
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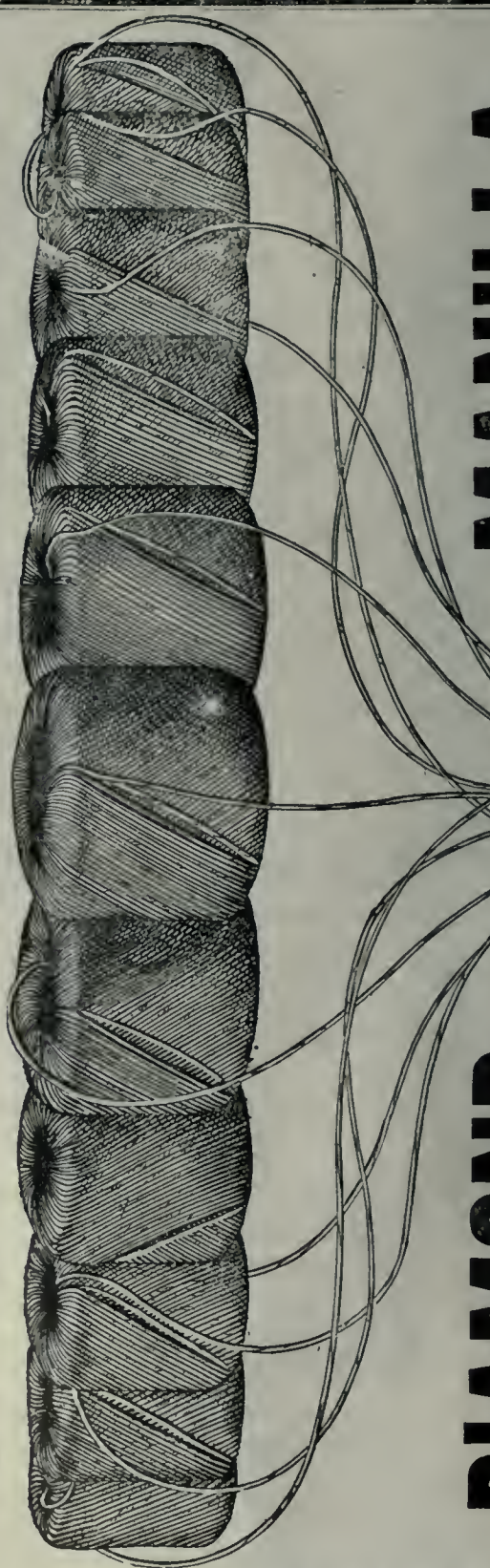
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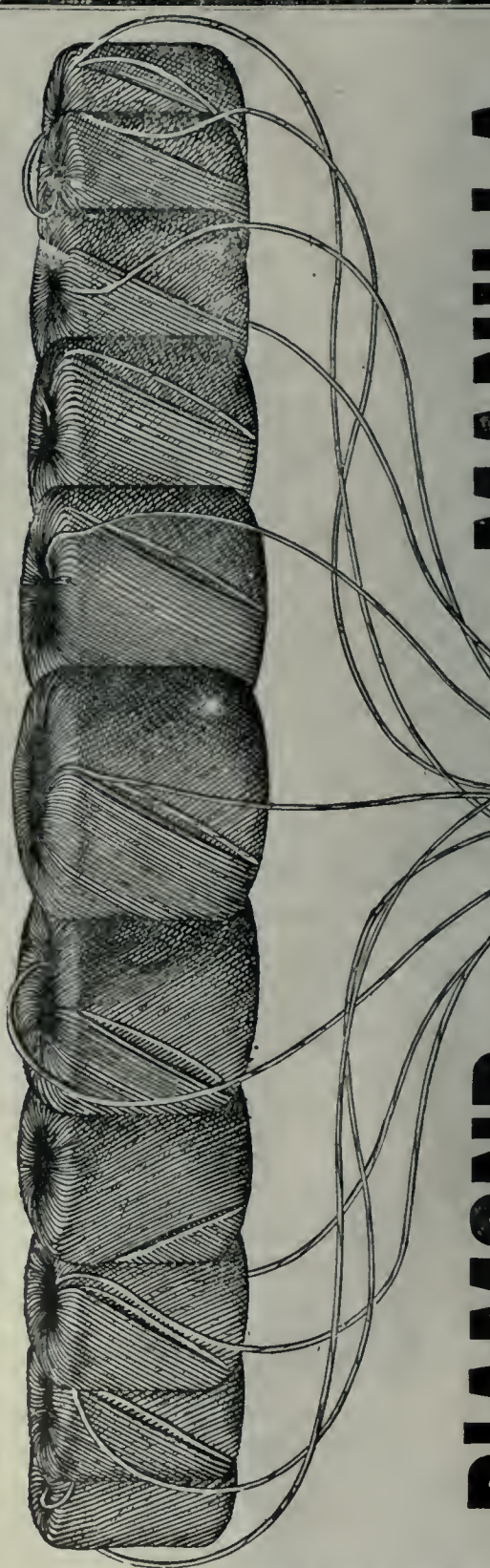
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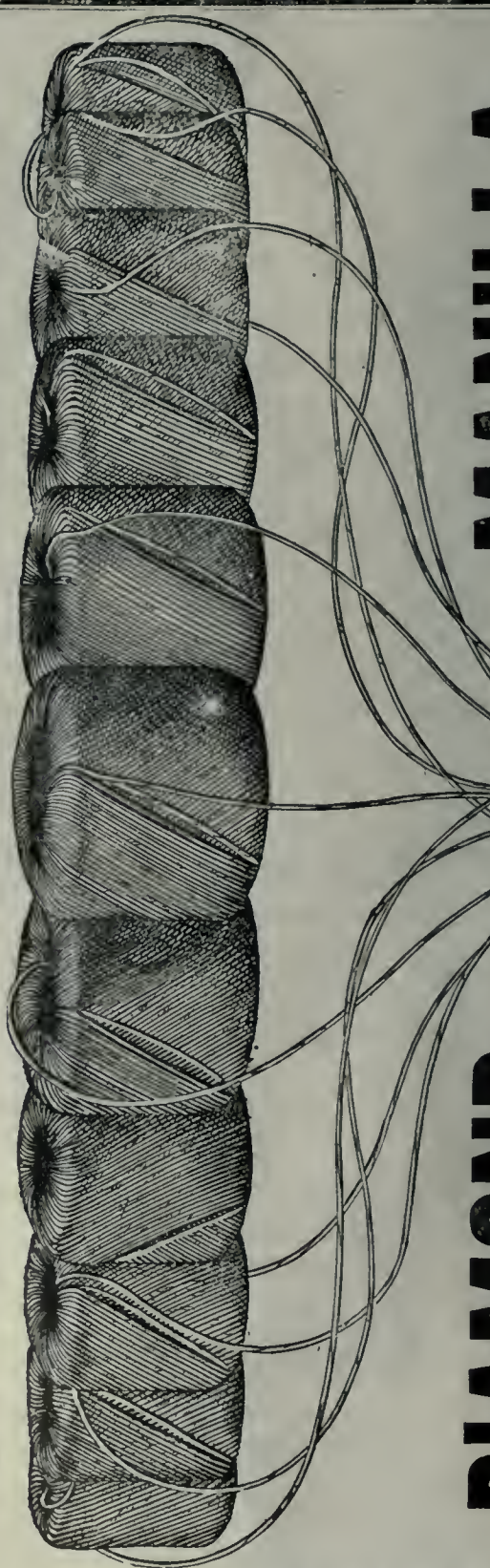
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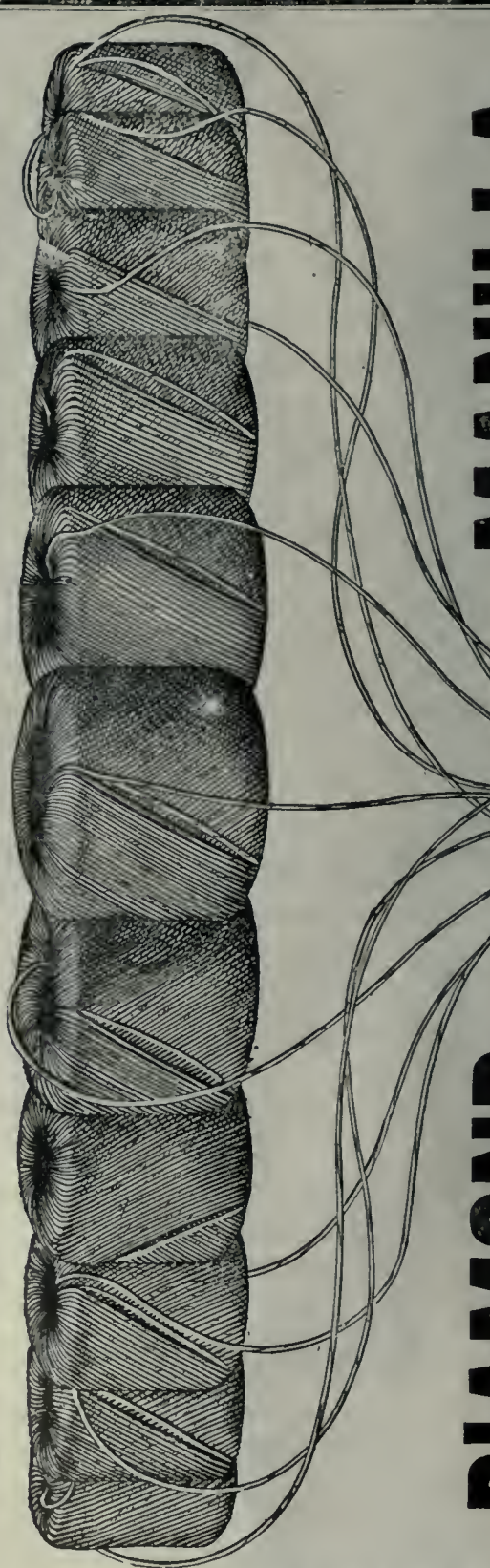
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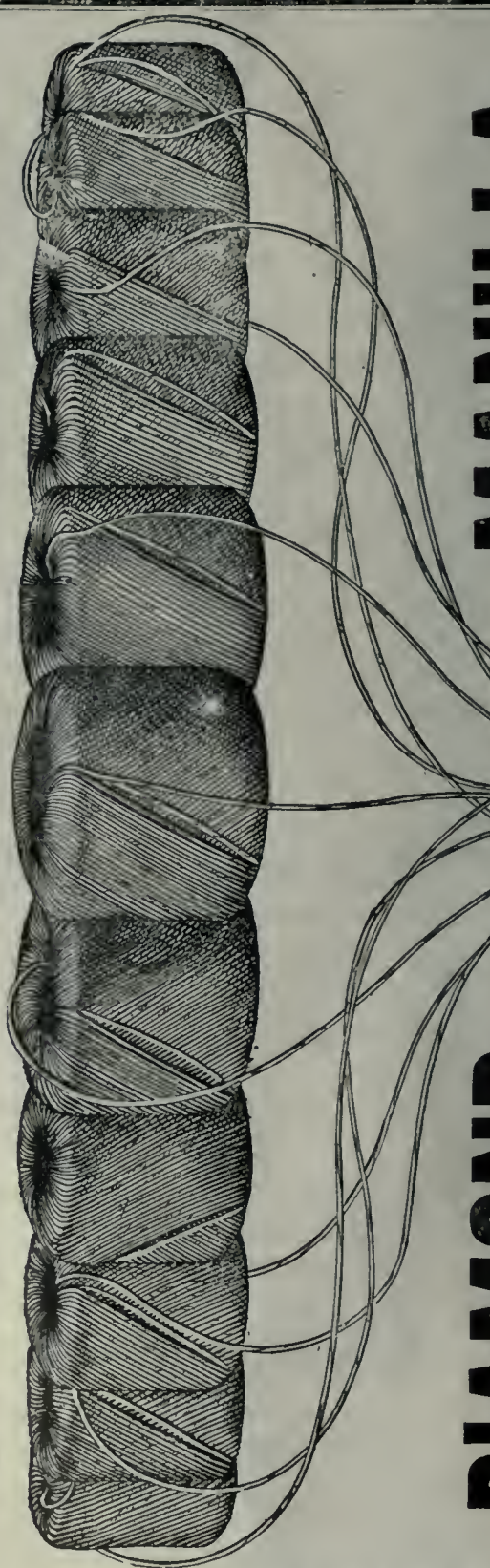
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GUARANTEE PROMPT SHIPMENT

inspection would be made by the Government and urged all of the associations to be very careful as to the quality. He stated further that the Co-operative Association should be specially careful of their pack, as they were counting on establishing a reputation for their fruit which would sell the same for many years to come. Most of the associations had an exceptional opportunity to put out good fruit, as the packing was done by

one lot of men under the manager's supervision and in many cases put through the one packing house.

Those of the officers present were enthusiastic as to the future of the co-operative movement in Ontario. The outlook for the present year seems specially favorable. Indications for a good crop of fruit seem to be general. It was thought that if a high quality of fruit was packed there would

be very little trouble in shipping all of it at a fair price, not only to the growers but also to the consumer.—P. W. Hodgetts, Secretary.

I like THE CANADIAN HORTICULTURIST very much, and derive from its perusal many valuable hints, of great use in the different branches of gardening.—I. G. Walker, Nanaimo Co., B. C.

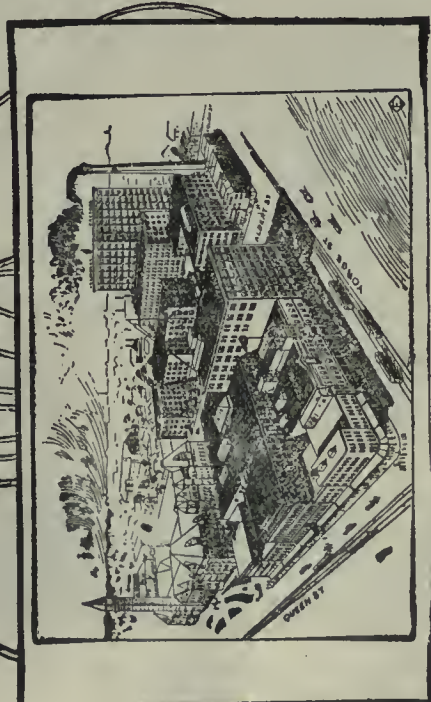
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TORONTO

New Destructive Insect and Pest Act for the Dominion

C. Gordon Hewitt, Dominion Entomologist, Ottawa

THE following is the text of the new Destructive Insects and Pests Act and the regulations issued in connection with the same. By the passing of this Act the San Jose Scale Act is repealed. It will be seen that the new Act and regulations are of a wider character and of a far greater protective value to the fruit grower and nurseryman. The fumigation regulations instituted under the Act have been incorporated in the new regulations with certain alterations. Under the new fumigation regulations conifers will be fumigated. It is hoped that this will assist in preventing the introduction into nurseries of several species of woolly plant lice which infest nursery stock and which are carried in the same.

In addition to the fumigation regulations, provision is made now for:

1. The inspection at the points of destination of European nursery stock (which is still exempt from fumigation) and such other stock as it may be deemed necessary to inspect.

2. The destruction of infested stock and packages, etc., containing the same and compensation for such matter as may be destroyed.

3. The inspection of orchards and nurseries and the treatment of infested vegetation.

4. The prohibition of the disposal in any way of vegetation infested with insects scheduled under the Act.

5. The notification of the presence of any of the insects, pests or diseases.

In view of the increasing amount of nursery stock imported through the port of Niagara Falls, the importation season for

that port has been extended and stock may now be imported between October 1st and May 1st.

The attention of importers of nursery stock is called particularly to the regulation under which notification must be given of the importation of nursery stock. All nursery stock, including European and such stock as is exempt from fumigation may be imported only during the periods specified under Regulation 3.

PROVISIONS OF THE ACT.

An Act to prevent the introduction or spreading of insects, pests and diseases destructive to vegetation.

(Note.—In what follows certain formal and unimportant clauses have been omitted. The number of each clause or regulation is the same as in the Act.—Editor.)

1. This Act may be cited as *The Destructive Insects and Pests Act*.

3. The Governor in Council may make such regulations as are deemed expedient to prevent the introduction or admission into Canada, or the spreading therein, of any insect, pest or disease destructive to vegetation.

4. Such regulations may provide—

(a) for the prohibition generally, or from any particular country or place, of the introduction or admission into Canada of any vegetable or other matter likely to introduce any such insect, pest or disease.

(b) the terms or conditions upon, and the places at which any such vegetable or other matter may be introduced or admitted into Canada.

(c) for the treatment and manner of treatment to be given to any vegetation,

vegetable matter or premises in order to prevent the spreading of any such insect, pest or disease, and may prescribe whether such treatment shall be given by the owner or by a person appointed for that purpose.

(d) for the destruction of any crop, tree, bush or other vegetable matter or vegetation, or containers thereof, infested with or suspected to be infested with any such insect, pest or disease.

(e) for the granting of compensation for any such crop, tree, bush or other vegetation or containers thereof so destroyed, such compensation not to exceed two-thirds of the value of the matter destroyed and to be granted only by the Governor in Council upon the recommendation of the Minister.

(f) for the prohibition of the sale of any vegetable matter infected with any such insect, pest or disease.

(g) that the occupier of the premises on which is discovered any such insect, pest or disease shall forthwith notify the Minister of Agriculture and shall also send specimens of such insect, pest or disease.

(h) for the confiscation of any vegetable matter and the container thereof, if any, in respect of which a breach of this Act or any regulation made thereunder, is committed, and generally for any other purpose which may be deemed expedient for carrying out this Act, whether such other regulations are of the kind enumerated in this section or not.

5. The Minister may appoint inspectors or other officers for carrying out this Act and the regulations made thereunder.

6. Any inspector or other officer so appointed may enter any place or premises in

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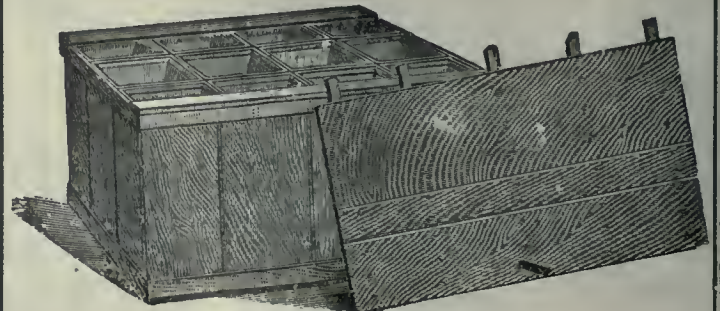
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which he has reason to believe there exists any such insect, pest or disease, and may take specimens thereof and also of any vegetable matter infested or suspected of being infested therewith.

7. The Minister, upon the report of any inspector setting forth a reasonable belief of the existence of any such insect, pest or disease in any area defined in such report, may prohibit the removal from such area or the movement therein of any vegetation, vegetable or other matter which, in his opinion is likely to result in the spread of such insect, pest or disease.

8. Every person who contravenes any provision of this Act or any regulation made thereunder, shall be liable, upon summary conviction, to a fine not exceeding \$100 or to imprisonment for a term not exceeding six months, or to both fine and imprisonment. Any vegetable or other matter imported or brought into Canada contrary to this Act, or to any regulation made thereunder, shall be forfeited to the Crown.

9. The San Jose Scale Act is repealed.

REGULATIONS UNDER THE FOREGOING ACT.

1. "Inspector" means a person appointed for carrying out the provisions of the *Destructive Insects and Pests' Act* and the regulations made thereunder.

2. No tree, plant or other vegetation or vegetable matter infested with any of the insects, pests or diseases to which this Act applies, shall be imported into Canada except as hereinafter provided.

3. Nursery stock, including trees, shrubs, plants, vines, grafts, scions, currings or buds entering Canada shall be imported only through the ports and during the periods respectively hereinafter mentioned, that is to say:

Vancouver, B. C., and Niagara Falls, Ont.
—From October 1st to May 1st.

Winnipeg, Man., and St. John. N. B.—

From March 15th to May 15th, and from September 26th to December 7th.

At these points of entry the importations shall be fumigated in the fumigation houses provided for that purpose, and a certificate of fumigation will be issued, without which no stock may be taken out of bond. Importations by mail shall be subject to the same regulations.

Provided, however, that the following vegetation shall be exempt from fumigation:

(a) Greenhouse plants with the exception of roses and other woody plants.

(b) Herbaceous perennials (the stems of

Sold Everything

"My aster advertisement in *THE CANADIAN HORTICULTURIST* was a success. I sold all the plants I had and received enquiries for about ten thousand more than I could spare."—C. M. Bezzo, Berlin, Ont.

The advertisement mentioned occupied one inch space in the May and June issues. This shows the value of *THE CANADIAN HORTICULTURIST* for advertising of this nature. If you have seeds, plants, bulbs or any kind of nursery stock for sale, you will find an advertisement in *THE CANADIAN HORTICULTURIST* will do the work for you. Try it.

which die down in winter) such as perennial phlox, peonies, sunflowers, etc.

(c) Herbaceous bedding plants (such as geraniums, verbenas, pansies, etc.).

(d) Bulbs and tubers (such as hyacinths, lilies, narcissi and other true bulbs, and also the tubers of dahlias, irises, etc.).

(e) Nursery stock originating in Europe. Cottonwood or Necklace poplar (*Populus deltoides*) when shipped from and grown in Dakota or Minnesota, two of the United States of America, may be admitted at the customs ports of Brandon or Winnipeg, Man., and without fumigation.

4. The port by which it is intended that the nursery stock shall enter shall be clearly stated on each package, and all shipments made in accordance with these regulations will be entirely at the risk of the shippers or consignees, the Government assuming no responsibility whatever.

5. All persons importing nursery stock into Canada shall give notice to the Minister within five days of despatching the order for the same, and they shall again notify the Minister on the arrival of the shipment in Canada.

6. European nursery stock, and such other imported vegetation or vegetable matter as the Minister may determine, entering Canada may be allowed to proceed and shall be inspected at the point of destination, but must not be unpacked except in the presence of an Inspector.

7. If, on inspection, nursery stock or other vegetation or vegetable matter is found to be infested with any of the insects, pests or diseases hereinafter specified, it shall be destroyed to the extent deemed necessary by the inspector and in his presence. All cases, packages and packing in which such stock has been contained shall also be destroyed in the same manner.

8. Any inspector entering lands, nursery or other premises where there is reason to believe that any of the insects, pests or diseases hereinafter specified are or may be present, shall give instructions for the treatment or destruction of any tree, lush, crop or other vegetation or vegetable matter or the containers thereof, which may be

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APPLE BARRELS

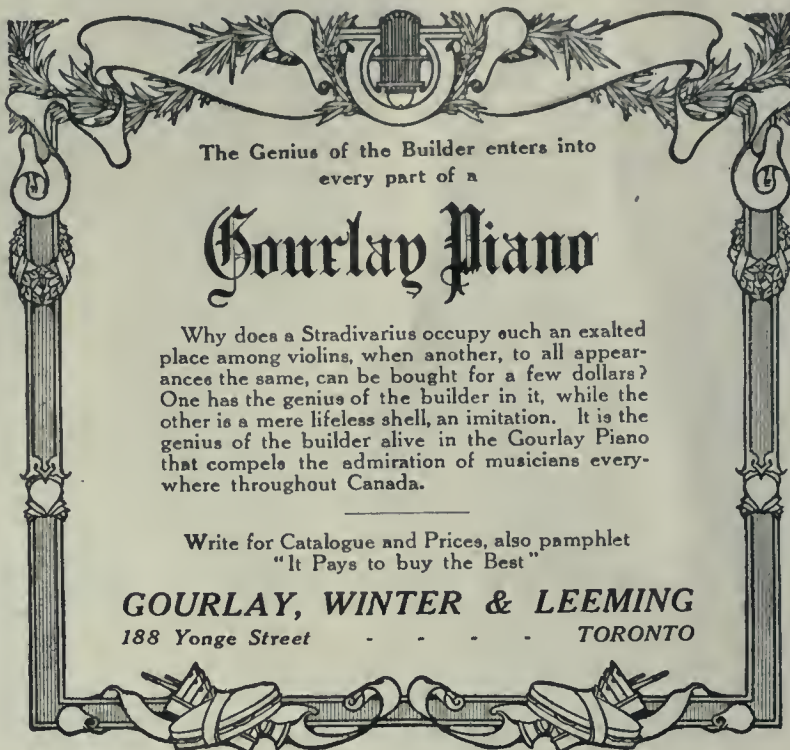
WE can furnish you with Staves, Hoops and Heading of the best quality for making Barrels, or arrange with our cooper friends to supply you with the Barrels ready for packing. All our stock is standard grade, warranted up to the requirements of the Fruit Department.

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Why does a Stradivarius occupy such an exalted place among violins, when another, to all appearances the same, can be bought for a few dollars? One has the genius of the builder in it, while the other is a mere lifeless shell, an imitation. It is the genius of the builder alive in the Gourlay Piano that compels the admiration of musicians everywhere throughout Canada.

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NO MORE BACK-ACHE.

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Garden Paths and Gravelled Spaces.

1 Gallon makes 100 Gallons of Weedkiller.

Per Quart, 50 cents, of all Seedsmen

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found or suspected to be infested with any of the insects, pests or diseases hereinafter specified, and such instructions shall be carried out by the owner or the lessee of the infected or suspected vegetation, vegetable matter or containers thereof, and such remedial treatment shall be carried out and continued until the insect, pest or disease shall be deemed by the inspector to have been exterminated.

9. Compensation not exceeding two-thirds of the value as assessed by the inspector, of the vegetation or vegetable matter or containers thereof, destroyed by the instructions of an inspector, shall be granted by the Governor in Council upon the recommendation of the Minister.

10. It shall be illegal to sell, offer for sale or in any way dispose of or receive any trees, shrubs or other plants, vegetable matter or portions of the same, if the same are infested with any of the insects, pests or diseases hereinafter specified.

11. The owner, occupier or lessee of any premises or place where any of the insects, pests or diseases specified herein shall be found, shall immediately notify the Minister and shall also send to him specimens of such insects pests or diseases.

12. The destructive insects, pests and diseases to which the said Act shall apply include the following:

The San Jose Scale (*Aspidiotus perniciosus*).

The Brown-tail Moth (*Euproctis chrysorrhoea*).

The Woolly Aphis (*Schozoneura lanigera*).

The West Indian Peach Scale (*Aulacaspis pentagona*).

The Gypsy Moth (*Porthetria dispar*).

Potato Canker (*Chrysophlyctis endobiotica*).

Parasitic diseases affecting potatoes externally or internally.

Branch or stem Canker (*Nectria ditissima*).

Gooseberry Mildew (*Sphaerotheca mors-uvae*).

White Pine Blister Rust (*Peridermium Strobi*).

13. The importation of potatoes into Canada from Newfoundland or the islands of St. Pierre or Miquelon, is prohibited.

14. The Minister may, upon special request to that effect, authorize the importation into Canada of any insect, pest or disease herein specified, but for scientific purposes only.

15. The regulations made under the San Jose Scale Act are repealed.

A Guide for Apple Growers

We are in receipt of a copy of The Canadian Apple Growers' Guide, by Linus Woolverton, M.A. Mr. Woolverton was editor of THE CANADIAN HORTICULTURIST and Secretary of the Ontario Fruit Growers' Association from 1886 to 1903, in which capacities he gained a thorough insight into methods of apple growing, to say nothing of the practical experience he gained on his own large fruit farm.

The book is divided into three parts. The first part is a complete guide to the planting, culture, harvesting and marketing of apples. The second part is devoted to a description of the apples of Canada illustrated from specimens of varieties grown in the Dominion. Part three contains a list of varieties of apples recommended for planting in the various apple districts. The book is handsomely bound and profusely illustrated. It is a credit to the author and to the publishers and will be found of interest not only by beginners but by experts as well. It is being sold by Wm. Briggs, Toronto.

NOTES FROM THE PROVINCES

Annapolis Valley West, N.S.

R. J. Messenger

The lime-sulphur idea in spraying has struck the people very forcibly. Some are using the home boiled, some the commercially prepared, and some both. We are all after the best thing and we expect to find it generally in the new thing.

To some last season's prices for apples are fairly satisfactory, while others are grumbling. The middle man and the English broker has each, in many cases, had his underhand quiet steal from the producer. It's the same old question of a few cents here and a few cents there—a "London clause" or a "forwarding charge," or a few barrels in each lot "slack and wasty." It would be a pleasant change if the guilty brokers would exhibit brains enough to invent some new terms to cover their petty thieving. The co-operative associations are having matters easier and we hope their object lessons may bring more.

Annapolis Valley East, N. S.

Ennice Watts, A.H.H.S.

Up to the time of writing, the month of June has been a cold one of continuous rains and in some sections disastrous frosts. On June 5 a severe frost cut down the potatoes, cucumbers, asparagus, corn, nasturtiums, Virginia creepers and the like; even young turnip leaves were frosted. The greatest loss has occurred in low lying orchards and cranberry bogs, while the mountains and elevated lands have escaped. Had it not been for this frost it would have been a banner year for strawberries. Plantations are in splendid condition however, the rains have kept the beds moist. The second blossoms have opened, which still promise a good crop.

A still earlier frost damaged the soft fruits, killing not only the flower buds, but the young green leaves which surrounded them. These are now brown and falling off. In some orchards where the trees escaped the first frost, the latter one completed the damage. It is early yet to say what are the prospects of the apple crop as many of the best orchards have escaped injury. A few years ago, when the June frost nipped the apples, the prices were high and results satisfactory.

Seeds have germinated quickly and show-ers are making them grow rapidly. Blackberry, raspberry, blueberry and other small fruits promise a good harvest.

Forest tent caterpillars have appeared, but owing to sprays keeping them out of the orchards they have turned their attention to ornamentals, especially oak trees.

Cut worms are numerous; where cabbages are grown in a small garden, paper collars put round the stems of the plants prove effectual; in fields poisoned bran is used. Potato beetles and flea beetles are attacking tomato plants. Owing to tomatoes being more tender than potatoes, care must be taken not to burn the foliage by spraying. Often the beetles can be kept under by hand picking, as they are usually not as numerous as in potato fields.

The planting of spruce hedges seems to be very popular this year, and home grounds are improving every month.

Norfolk County, Ont.

The middle of June cherries generally were very light, real early cherries not more than half a crop, strawberries a good crop; apples in general are fairly good; Greenings good in some orchards, in others none; Spys not very good; Baldwins, Kings, Russets and fall varieties a good crop. Peaches well loaded, the curl leaf being completely combated by lime and sulphur.

The Norfolk Fruit Growers' Association has 300 members this year, and great quantities of spraying material have been used. The spraying has been well done and the association expects a better quality of apples than ever this coming season.

Good success has attended the use of lime and sulphur, both the home boiled and the home-made concentrated.—W. W.

Niagara District, Ont.

In the Winona and Grimsby sections early strawberries have been scarce and in great demand. Buyers have been paying \$2.75 to \$3.50 a crate. On Hamilton market they have been bringing 17 to 20 cents a box. Up to June 21 they ripened slowly, but the bright, warm weather now is bringing them on fast, and they will come in with a rush. Williams—the main shipping berry grown here—is looking magnificent. There will be a great crop of these of extra fine quality. Raspberries, red and black currants and gooseberries are heavily laden, and unless scorching hot, dry weather intervenes, will be a great crop.

Blackberries are blossoming freely and promise well. Cherries are not more than half a crop. Early white are pretty good, but blacks are light, and sour cherries, such as early Richmond and Montmorency, are light in many orchards.

Plums are not fulfilling their early promise of a heavy crop. Japanese are light and Europeans not much over half a crop.

Pears are good, all varieties but Duchess being well loaded.

Peaches will not be much over half a crop. Where not sprayed early and thoroughly with lime and sulphur they suffered desperately from curl leaf.

Apples look well. Early varieties, such as Astrachan and Duchess, have set a heavy crop. Greenings are good, generally speaking. Other winter varieties are about an average except Baldwins and Spys, which are inclined to be light.

Mr. Joseph Tweedle of Stoney Creek reports prospects of a crop of almost 2,000 barrels from his celebrated orchard at Woodburn, which bore such a splendid crop last year.

Grapes are looking exceedingly well and are now in full bloom. They are making a very vigorous growth. Most of the growers, however, do not expect a very heavy crop this year. Mr. E. D. Smith and the Randal Grape Juice Company both report a good sale for their unfermented grape juice.

Tomatoes suffered badly from the cold, wet weather, and cold nights, and a good many early planted ones had to be re-set. The bright warm weather of the past week, however, has brought them on wonderfully.

Spraying generally has been well attended to in this part of the Niagara district. Apple orchards in particular have been more carefully sprayed than usual. The curculio and codling moth were somewhat later than usual in making their appearance, the cold, wet weather being unfavorable to their development.

Mr. Tweedle of Stoney Creek reports excellent success in the use of lime and sulphur upon Flemish Beauty pears this season. They were first sprayed at winter strength, namely at a dilution of 1 to 10, then twice at a summer strength of 1 to 40. They are completely free from scab, whilst those untreated are very scabby.—W.W.

St. Catharines Section

Strawberries are a heavy crop around St. Catharines. Raspberries and other small fruits are very good; cherries not much over half a crop, both sweet and sour; peaches good on well sprayed orchards, on others almost a total failure; pears, generally well loaded; plums, Japanese light, European moderately good; apples, most varieties promise a good crop.

Tomatoes, melons, etc., were much injured by cold, damp weather. At one time many fields of late tomatoes were looking very badly, but the warm bright weather of the past week has helped them wonderfully. On the whole, the outlook is bright.

Canning and jam factories have been contracting at 4 to 4½ cents a box for raspberries.

Buyers have been offering \$1.25 an 11-quart basket for black currants.

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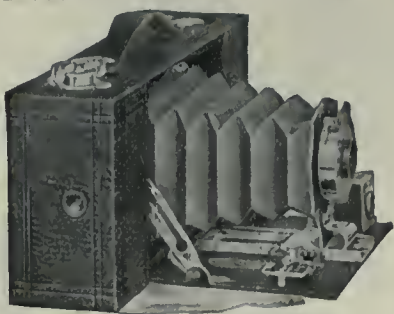
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The Book of the BROWNIES

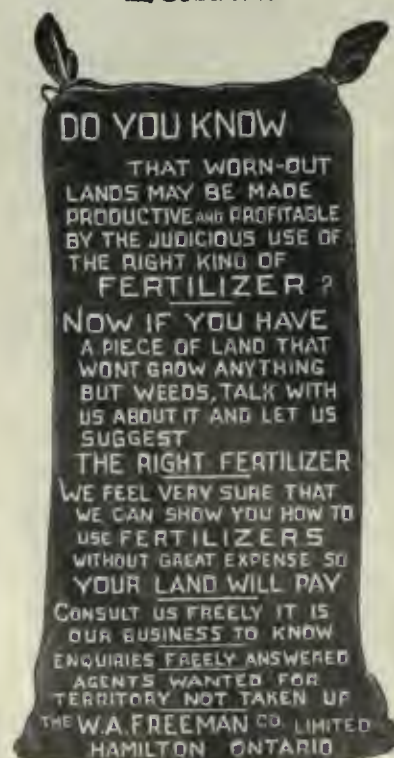
At your dealer's or free from us by mail, explains in detail all about these little cameras and how they have made picture taking simple and inexpensive.

Brownie Cameras use the daylight loading film cartridges—just like a Kodak—are efficient, durable and practical little instruments. Anybody can make good pictures with a Brownie without previous experience.

The illustration shows the new No. 2A Folding Pocket Brownie, for 2½ by 4¼ pictures, price \$7.00. A box-form Brownie for pictures of the same size costs only \$3.00. But first get the book or ask the dealer to show you the line of Brownie Cameras from \$1.00 to \$12.00.

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Fertilize Your Lands



Toronto, Ont.

The growth in the consumption of fruit in Toronto during the last ten years has been astonishing. Only a few years ago 8,000 baskets of peaches were all that were handled in a season. Now that much is sometimes handled in a day. Less than 10 years ago there were not more than 15 wagons employed in handling the wholesale fruit business. Now there are over 150. Ten years ago there was no importing done from California. Last season White & Co., alone brought in 52 carloads of peaches, pears, plums, grapes and apricots. This firm expects to handle 80 cars or so this summer.

The growth in the trade is causing an agitation to have a large fruit market established at a point central to the railroads and boats. A special committee of the city council has the matter in hand.

Unusually high prices have been paid for strawberries this season. Wholesale prices have ranged at 17c. to 20c. a box.

British Columbia

Last year Mr. J. C. Metcalfe, on behalf of British Columbia fruit growers, visited practically every town in Alberta and Saskatchewan as a special market commissioner to study the requirements of the markets at first hand. In his report to the members of the British Columbia Fruit Growers' Association Mr. Metcalfe has given his conclusions as follows:

I found the market for British Columbia fruit almost unlimited. The population of the prairies is increasing very rapidly, and the wealth, and consequently the fruit consumption, *per capita*, is increasing rapidly also. British Columbia is the natural fruit-producing country for this territory, and every effort should be made to supply it.

All over the prairies, the opinions of wholesalers and retailers of fruit were secured, particularly with regard to necessary improvements in methods of packing and grading, and comparison with American and Ontario fruit. In small fruits, the consensus of opinion was very favorable as to the quality, but grading and packing must be considerably improved. Uniformity of size of fruit is greatly prized, and strawberries, raspberries and blackberries, should be graded into large and small.

Cherries have not been regarded as favorably as the smaller fruits, chiefly from the custom of shipping coast fruit as far as Winnipeg. Our coast fruit should be shipped principally to Alberta and Saskatchewan markets by express. The same is true of plums from the Lower Mainland.

Peaches and pears from the Okanagan, and pears from the Lower Mainland and Vancouver Island also, compare favorably with American fruit as to flavor, color and packing.

British Columbia apples are highly esteemed. Much of the packing is equal to anything from the American side, while the color and flavor are quite as good as the best Ontario apples. In some districts, very much improvement must be made in spraying, pruning and thinning, in order to produce the best fruits.

British Columbia growers must increase their supply as rapidly as possible, aiming at carload lots from every shipping point. The grower should aim to grow the varieties best adapted to his district and to his markets.

The fruit jobbing trade of the prairie provinces is to a very considerable extent in American hands. Despite this, they seemed to desire to handle British Columbia fruit whenever they could get a sufficient supply.



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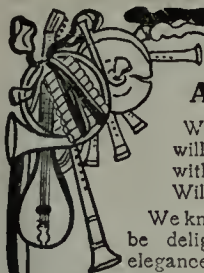
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to have Salt like this**

"When I was just starting housekeeping, the only good thing about the salt we had, was its salty taste.

"But you girls can get

Windsor Table Salt

—that excellent salt which stays fresh and dry in all kinds of weather—and never "cakes" or "hardens." You will never have any trouble with Windsor Table Salt."



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We know that you will be charmed with the New Scale Williams Piano.

We know that you will be delighted with its elegance and refinement.

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This is why we will select a

New Scale Williams

—and ship it to you direct from the factory—subject to your approval.

If, for any reason, the piano which we select does not give satisfaction, return it and we will pay the freight charges both ways.

Write us for full particulars about our Plan of Shipping New Scale Williams Pianos on approval, and buying them on Easy Payments.

The Williams Piano Co., Limited, Oshawa, Ont.

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KENDALL'S SPAVIN CURE

Kills Bone Spavin

Rich Valley, Alta, May 20th. 1909
"I have used your Spavin Cure for a long time and would not be without it. Have killed a Bone Spavin by its use."
OLE CARLSON.

That tells the whole story. And hundreds of thousands have had the same experience in the past 40 years.

For Spavin, Ringbone, Curb, Splint, Swellings and all Lameness,

Kendall's Spavin Cure cures the trouble—makes the horse sound and well—and saves money for the owner because it removes the cause of the trouble.

Keep a bottle always at hand—\$1.00 for \$5. Good for man and beast. Ask your dealer for free copy of our book "A Treatise On The Horse" or write us.

DR. B. J. KENDALL CO., Enosburg Falls, Vt.

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THEY ARE THE BEST ON THE MARKET

WE MANUFACTURE

STANDARD POTS

FERN PANS

AZALEA POTS

HANGING BASKETS

SAUCERS AND

STRAIGHT PANS

Canada's Leading Pot Manufacturers

The FOSTER POTTERY CO., Limited

Main St. West, Hamilton, Ont.

Mention The Canadian Horticulturist when writing

Along the Crows' Nest line, down to Medicine Hat, and north by Macleod to Calgary, is a market for small fruits, and for fruit generally, which can be taken care of by the Kootenay growers, and they should strain every nerve to increase their output to supply the demand in this territory.

British Columbia fruit is handled through one of two methods, either to the present jobbing houses or to the retailers direct, the latter principally for small fruits. It would be possible for British Columbia growers to establish their own jobbing houses, and sell to the retail trade, but this involves a tremendous amount of capital for distributing houses with cold storage at the various points, agents or travellers to solicit business, and we would have to handle early American fruits and all varieties of citrus fruits. On the whole, shipping to responsible jobbers is best at present, at least for the most of our fruit.

SUMMARY.

What is most necessary in British Columbia is a campaign of education along the lines of—

(1) Growing more fruit, both large and small; (2) growing better fruit; (3) growing the varieties of fruit most wanted; (4) better packing and grading with greater weight in packages; (5) care in loading cars; (6) co-operation in every line, including the growing of uniform varieties, co-operation as to information on prices between different districts and shippers, and in time, a general co-operation over the province to place fruit to the best advantage in the proper markets.

Okanagan Prospects

It is estimated by W. C. Ricardo, manager of the Coldstream Ranch, that this season all records for fruit production in the Okanagan Valley will be broken. There are indications that the valley will produce a 500-car crop of apples, plums, prunes and peaches, small fruits not being included. Should this estimate be fulfilled, the crop this year will exceed last year's by about 300 per cent., due largely to young trees coming into bearing for the first time.

Fruit prospects all through the valley are bright. The trees escaped frost and promise to bring to maturity a superior class of fruit.

Similkameen, B. C.

The fruit crop in the Similkameen Valley gives promise this year of an enormous yield. Around Keremeos, where over 18,000 trees have been planted within the past five years and are now in bearing, the fruit growers will have a busy summer thinning out the crop to prevent injury to the trees. The peach and apple crop in particular will be very large, no injury whatever being done by the early frosts to peaches.

I enjoy very much and greatly profit from the reading of THE CANADIAN HORTICULTURIST.—P. J. McLaren, Perth Co., Ont.

Last year I made the acquaintance of your most interesting and useful magazine. It is a great pleasure to introduce this good friend to anyone whom I think it might help as it has done me. We Canadians must try to know more of, and advertise better, such magazines as are devoted to the development of our magnificent country. When one has a pleasant synopsis of what is so very interesting and profitable to us, a people to whom Nature has given such a goodly heritage, surely we cannot do other than support such a periodical.—Miss Grace Harris, Carleton Co., Ont.

V2 FLUID For Summer Spraying

KILLS GREENFLY, PSYLLA, SCALE INSECTS, AND YOUNG CATERPILLARS

V2 K FLUID

FOR ROSE AND OTHER MILDEWS

Prices and full particulars from
Wm. COOPER & NEPHEWS, Toronto

APPLE BARRELS

WRITE ME FOR PRICES ON

Staves, Hoops, Heading and Liners for Standard Barrels.

Correspondence Solicited with Fruit Associations. Can supply Barrels at low prices.

JOHN HAYNE

BRIGDEN, LAMBTON CO., ONT.

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A HOUSE, BARN GREENHOUSE or SILO?

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Capital Subscribed 5,662,000.00

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Kills Greenfly, Psylla, Scale Insects
and Young Caterpillars.

Easy to Mix. Easy to Apply.

Prices and full particulars, from
Wm. COOPER & NEPHEWS, Toronto**HARDY PERENNIAL
SEEDS**Catalogue Sent Free on
Application**DUPUY & FERGUSON
SEEDSMEN MONTREAL****AGENTS WANTED FOR
LYTLE'S****PURE ARSENATE
OF LEAD**

In 10, 50, and 100 lb. Kegs

**WEED-KILLERS
INSECTICIDES
SHEEP-DIPS, Etc.**

Full Particulars on Application

BOUNDARY CHEMICAL CO., LTD.
Cranmer St., LIVERPOOL, ENG.**Fruit Commissioner in the West**

Mr. J. C. Metcalfe is representing the fruit growers of British Columbia this summer on the western markets, and forwarding periodical reports of market conditions in the Prairie provinces to the Provincial Department of Agriculture. Mr. Metcalfe's first report was made from Moose Jaw under date of May 30th. It gave the views of wholesalers and retailers on the crop of various kinds of fruit in the American coast states. Descriptions were given of the condition in which fruit was reaching the markets from Tennessee, Missouri, Hood River and California, and the prices it realized.

British Columbia growers were warned that as the supply of fruit is likely to be plentiful they will have to exercise great care this year to see that their fruit is packed in the best possible manner and condition. While the good and finished product is likely to sell well, the poor and unfinished may prove a drag on the market. Mr. Metcalfe reported that a determined effort was being made by jobbers operating through their boards of trade to secure a reduction in the tariff on American fruits, and that the agitation is to be continued.

Year's Results for St. Catharines Shippers

The past year was one of the most successful in the history of the St. Catharines Cold Storage and Forwarding Company, the pioneer co-operative fruit growers' association in Ontario. The wonderful record was made of shipping 148 car loads of fruit to the west without its being necessary to settle a single claim on account of fruit arriving in bad condition.

STRAWBERRY SHIPMENTS.

Early in 1909 three large shipments of strawberries to Winnipeg were arranged to prove the possibility of opening up an outlet to relieve our eastern markets. The first shipment was made on June 26th, by ordinary refrigerator car freight service; the second on June 28th by ordinary express; the third by patent ventilated express car, and the results on the whole were such that the company intends to make further shipments. Early in the season the regular shipments comprised three cars weekly. These increased to a car daily, and in a few weeks from two to five cars daily were forwarded to the company's agent in Winnipeg, and as far west as Calgary and Edmonton.

IMPROVEMENTS.

This year the company will use a colored label with a printed brand name on all choice fruit, more especially those shipped to the west and to Toronto.

THE FINANCIAL YEAR.

The financial statement presented by Mr. W. C. McCalla, for the year ending April 1st showed the total earnings to have been \$109,105.22, against which were expenditures to the amount of \$107,957.59, leaving a balance of \$1,048.64.

Assets to the amount of \$13,891.74 were shown, with liabilities amounting to \$10,245.73, showing a balance of \$3,646.01.

Prof. W. Lochhead, of Macdonald College, Que., is absent on a trip in Europe, and will not be back until about the middle of August.

Mr. W. T. Macoun, who has recently been appointed Dominion Horticulturist, and placed in charge of the horticultural work on the various experimental farms of the Dominion Government throughout Canada, will leave Ottawa during the first week in July to visit all the western farms and note the horticultural work being done on them.

IMPORTANT AND USEFUL BOOK**THE CANADIAN
APPLE GROWERS' GUIDE**

This is the latest and most up-to-date work on Apple Culture now before the public. It has been prepared by Lums Woolverton, so long secretary of the Ontario Fruit Growers' Association and Experiment Stations, from a lifelong experience in growing and shipping apples.

Profusely and beautifully illustrated, a book which should be in the hands of every person interested in Apple Growing. The best book on the subject ever issued.

ORDER NOW. Cloth and gold, \$2.00, or postpaid, \$2.25.

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Write for our free illustrated booklet at once.

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August 27 to September 12

\$4,000

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**Electric Insect Exterminator**

The only practical dry powder sprayer—no water required. With this sprayer, one pound of Paris Green will cover an acre of potato plants. Our patented device regulates the quantity of powder and prevents waste. Machine works up, down and sideways, so every part of the plant is reached and every bug killed. Children can keep vegetables and flowers free of insects, without trouble, when you have the Electric Insect Exterminator.

Illustrated catalogue of Sprayers, Seeders, Planters, Drills, Wagon Boxes, etc., sent free on application. The Eureka Planter Co., Limited, Woodstock, Ont.

The Pre-cooling of Fruit for Shipment*

J. A. Raddick, Cold Storage Commissioner, Ottawa

The so-called pre-cooling of fruit, vegetables, or other produce, consists of an arrangement whereby the circulation of air which is chilled with a refrigerating machine, is directed through a loaded car by means of temporary and adjustable pipes or ducts. That is to say, the car is placed in the same relation to the refrigerating machine for the time being as an ordinary chamber in a cold storage warehouse.

My attention was first drawn to this system by the work of the bureau of plant industry of the United States Department of Agriculture in California where they experimented in connection with the shipment of citrus fruits and vegetables in conjunction with the Pacific Fruit Express Company, a subsidiary company of the Southern Pacific Railway system, and by correspondence with Mr. L. A. Roy, of Chicago, who is interested in the preemption of the idea.

Two years ago, I fitted up the necessary connections at the St. Catharines Cold Storage and Forwarding Company's warehouse, but we were never able to give it a fair trial on account of the small size of the plant. The partial cooling which was affected was undoubtedly of some benefit, but hardly worth the time and trouble. It would take too long with the six ton machine in use there. The pre-cooling of a car-load of warm fruit, in addition to the chilling of the car itself, which is a considerable item, takes about two tons of refrigeration and as it should be accomplished in about four hours, it is equal to a machine capacity of twelve tons in twenty-four hours. If two cars were to be cooled at one time, it would require a plant of at least twenty-five tons capacity. Further, in order to be effective, the cold blast should have a temperature of not more than twenty to twenty-five degrees and that precludes the possibility of using the same circulation in the warehouse where the temperature in the fruit rooms must not go below thirty-two degrees. As long as the fruit in the car is warm, the cold air blast can safely be reduced to several degrees below the freezing point, but this is not permissible in a warehouse where the contents are already reduced to the minimum of safety.

During the summer of 1909, I had an opportunity of inspecting the large plants which have been erected by the Southern Pacific Railway in California. They have spent \$1,500,000 on two plants, one at Roseville in northern California and the other at Colton in the southern part of the state.

These two plants are at interior points where the traffic converges for the overland journey. The one at Colton has 500 tons of refrigeration and can handle a whole train of cars at one time. In addition to the cooling facilities, there is a large equipment for making the ice with which to fill the bunkers of the cars.

You will observe that these cooling facilities are being provided in California by the railway company and I am of the opinion that it properly falls to them to do it. In the first place, they benefit by the saving of ice, and a plant erected by the railway can be made to serve a whole district at very less cost than the aggregate cost of erecting and operating a number of small plants. Moreover, it should be the business of the railways to carry the freight which is entrusted to them in the best possible manner and, if pre-cooling comes to be one

of the necessary aids to the transportation of Canadian fruit, it seems to me that it is up to the companies to furnish it.

I can see the possibility in the future, or I might say the practicability of operating a plant, say at Hamilton, to serve the district between Niagara and that city in connection with western shipments. With some system of prompt movement of the cars from loading points to the cooling centre, they would be started on their overland journey without serious delay and with the best possible chance of reaching their destination with the contents in good condition.

It will be evident from what I have said that pre-cooling does not differ in principle from the cooling which is effected by placing the goods in a cold storage warehouse, but if it is conceded, and it certainly may be, that immediate and rapid cooling is important in the handling of perishable produce, then it must be admitted that, under certain circumstances, pre-cooling has decided advantages. One advantage over cooling in a warehouse is that it saves handling the fruit and the consequent exposure to warm air while being transferred from warehouse to car, a thing to be avoided as much as possible. With proper equipment, a car-load of fruit may be cooled in this way as much in four or five hours as it

would be in two or three days with ice only in a refrigerator car. A more rapid circulation of air at a much lower temperature than can be secured with the use of ice removes the heat in a comparatively short time.

Perhaps no other single horse remedy has ever been so generally used or had so great a reputation as Dr. Kendall's Spavin Cure. Almost everyone who owns a horse has heard of it. As it has been in use for nearly half a century, it is evident that its popularity is the result of merit. Persons owning horses will be interested in a book entitled "A Treatise on the Horse and His Diseases," published by the manufacturers of Kendall's Spavin Cure. It may be obtained free at drug stores or by writing for it to the Dr. B. J. Kendall Co., Enosburg Falls, Vt.

Canadian National Apple Show

Although the British Columbia Government have refused to make a grant, arrangements are being pushed in British Columbia for the proposed first Canadian National Apple Show. Officers have been elected. The treasurer of the Board of Management is Geo. R. Baldwin, a controller in the city of Vancouver. In addition to the cash already in sight the committee

Keeps out large Animals—Keeps in the Chickens

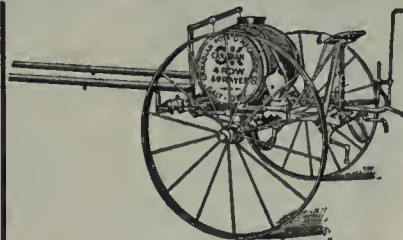
We've put strength and stiffness into the **PEERLESS JUNIOR** Poultry Fence so it can stand the attacks of restless animals from the outside. We have made it close enough so small fowl cannot get through. It is made of much heavier wire than the ordinary poultry fence, well galvanized, therefore much more durable.

Peerless Junior the fence that saves expense

That heavy, No. 9, hard steel wire at top and bottom holds the fence taut and true without the necessity of fence boards and saving more than half the usual number of posts. That means considerable saving to you. Write for our printed matter about **PEERLESS** Fences. We make fences and gates for every purpose.

BANWELL HOXIE WIRE FENCE CO., Limited
Hamilton, Ont.
Winnipeg, Man.

Dept. O.



O.K. Canadian 4 Row Sprayer

Sprays 4 rows while you drive, no hand pumping to do. Wheels and nozzles adjustable for wide and narrow rows. Can be adjusted to spray vines 6 inches to 2½ feet high. Can be furnished with Broad Cast vineyard and tree spraying attachments

Write for particulars.

Canadian Potato Machinery Co., Ltd., 124 STONE ROAD, GALT, ONT.

"CARY"

FIRE PROOF SAFES AND VAULT DOORS
ALL SIZES

Ford & Featherstone - **Hamilton, Ont.**
W. T. SHERWOOD, Representative

*Part of an address on "The Cold Storage of Fruits," delivered before Ontario Fruit Growers' Association at its last convention.

states that it will be necessary for the citizens of Vancouver to contribute about \$20,000, to insure the unqualified success of the enterprise.

The committee announces that it is not its intention to make the show a fixture in Vancouver, as he believes that its educational value will be enhanced if in future years the show is held in such cities as Halifax, Montreal and Toronto.

A Fruit Board at Orillia

With the object of developing the fruit prospects of Simcoe county, a fruit board has been organized in Orillia, Ont. The board was formed on the initiative of the Orillia Board of Trade. It is composed of representatives of the Board of Trade,

Farmers' Institute, Agricultural Society and Farmers' Clubs. Mr. C. L. Stephens has been elected chairman and Mr. C. H. Hare, secretary.

The Board is recommending the fruit growers of the section to specialize on four varieties of apples, the Duchess, Snow, McIntosh Red, and Pewaukee, all four varieties of which do well in that section. The Pewaukee apple was chosen as the best late apple, the greening and the Baldwin not being hardy around Orillia.

Experiments are to be conducted in the top-grafting of Spys. The Board has requested the county council to make a grant so that the county will be able to make a display of its fruit at the Ontario Horticultural Exhibition, Toronto, next November.

The Board is considering ways and means

of insuring the fruit trees bought by local growers being true to name, also the best methods of marketing the fruit of the section.

The Visit to England

The invitation to Canadian fruit growers to visit England that was received from the National Fruit Growers' Federation unfortunately did not meet with much response. It has been announced that our fruit growers felt it scarcely to their advantage to visit the fruit plantations of England, it being the marketing end of the industry that attracts their attention there. Some statements in the matter of expenses also have been given as a reason for not accepting. Another reason has been advanced in the statement that individuals

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name and address.
A postal request will
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This Catalogue is published to give our Mail Order customers the advantage of the Special Purchases and Stock-taking Sales that City customers enjoy during the Summer months—you'll find that the prices we quote in it are lower than at any other time of year.

Send for the catalogue now; every department of the store has contributed its best values. Remember we pay charges both ways and refund your money on any merchandise that is not absolutely satisfactory.

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The **SIMPSON** Company
Robert Limited
TORONTO

can gather more exact information than by travelling in a body.

Answering some of these objections in the weekly report of the Department of Trade and Commerce for May 16, W. A. Mackinnon, the commercial agent at Birmingham, says: "Two points should be made clear: First, that the invitation from the National Federation of Fruit Growers does not limit their Canadian friends to any particular time or season, but makes them welcome at their convenience; and second, that even if an organized body visits the docks and fruit markets as suggested (for which purpose the months from October to March would be best), there is no reason why the

party should not frequently break up, and its members make individual visits for the purpose of securing personal information from quiet observation. The advantages to be obtained by the association of fruit growers together during the familiar intercourse of an ocean voyage, as also from the social and other functions sure to be arranged in honor of such a party, need not be dwelt upon, as they are quite apparent.

"Finally, without deprecating the value of an official delegation entrusted with a definite mission, and instructed to issue a formal report after their investigations, it should be remarked that such was not the plan originally suggested by this office. On

the contrary, it was hoped that there would be an informal excursion of a large number of well-to-do fruit growers of Canada, organized as it were spontaneously, though carried out systematically, and forming an ideal holiday in which pleasure, profit and actual business might take equal shares. Canadian manufacturers realized this ideal some years ago, and it is still thought that the fruit growers might be no less successful.

Garden Competitions

For several years Hiram Walker & Sons, Limited, acting sometimes in conjunction with the local Horticultural Society, have offered a number of very fine prizes for com-

HECLA FURNACE

And Its FOUR Big Features

The "Hecla" has four exclusive features that have brought it steadily to the front as the perfect warm air furnace.

These improvements are so vital—they mean so much in comfort and health and economy—that every man who is going to put in a furnace this year, should study them in detail.

Fused Joints

are the only permanent joints between castiron and steel. By means of these joints, we prevent gas and smoke from getting in the Air-chamber and from there into the house.

Fused Joints are absolutely and permanently tight, and insure the warm air being fresh, pure and untainted by gas, smoke and dust.

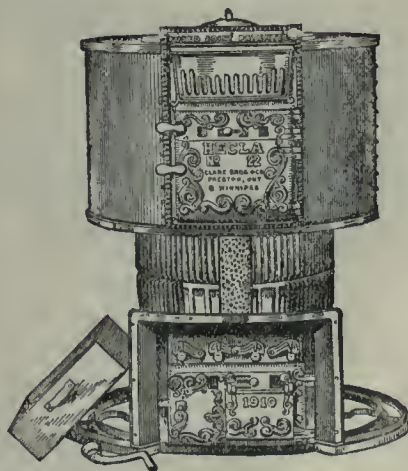
Steel Ribbed Firepot

has three times the radiating surface of any other.

It never becomes red-hot—will not burn out—and will save $\frac{1}{8}$ of your coal bill by actual test.

Our little book "Hecla Heated Homes" tells you a lot of things you ought to know about a furnace, besides the exclusive features mentioned above. Let us send you a copy. It's free. Write.

Send us rough plan of your house—and we will submit estimate of the cost of installing the proper size "Hecla" in your home.



Individual Grate Bars

Each bar can be shaken separately. Fire can be cleaned thoroughly without using a poker or shaking down good coal or live fire.

No clinkers to clog the grate in the case when bars are clumped together.

Of course, one bar is much easier to shake than four.

Castiron Combustion Chamber

We found out, by careful tests, that steel would not stand the intense heat of the furnace fire. So we perfected the Castiron Combustion Chamber, which has proved its wonderful strength, service and durability.

Clare Bros. & Co. Limited, Preston, Ont.

petition by the citizens of Walkerville, Ont., to encourage the horticultural improvement of their homes and gardens. This year over \$200.00 will be offered in prizes. Prizes are given for collections of blooming plants, arranged in beds or borders; for flowering vines, honeysuckle, clematis, etc.; for window, lawn or porch boxes seen from the street; for hedges bordering streets; for hanging baskets and so forth. The prizes are divided, one set being offered to property owners and the other to tenants.

Gardens entered in the competition have to be cultivated and cared for by the competitors, or members of their households. Winners of first prizes for two consecutive years are not eligible to compete in the same class a third year. Competitors are urged to place their flower beds as far as possible where they can be seen from the street, and to arrange them in keeping with the size of their yards. The judges will visit the gardens entered for competition four or five times during the season.

Horticultural Societies holding or planning to hold similar contests will be apt to find helpful suggestions in the prize list and rules as printed and distributed by this company.

Horticultural Society Notes

The members of the Guelph Horticultural Society held a lawn meeting on the grounds of the Agricultural College early in June. Prof. Hutt and Mr. Hunt were in charge and described the shrubs and flowers then in bloom.

The members of the Toronto Horticultural Society held an exhibition recently in the Allan Gardens, which achieved unusual success. Over six hundred vases of flowers were on view. Their beauty was supplemented by an array of ornamental greens

provided by the City Parks' Department, municipal institutions and professional florists. A beautiful specimen of the English hawthorn was greatly admired. Many different varieties of flowers were shown. Their quality was unusually high.

Items of Interest

Early this year Messrs. Parnell and Robt. Thompson, representing the Cold Storage & Forwarding Co., St. Catharines, Ont., visited the western provinces to examine market conditions and prospects. They found opposition to the system followed of auctioning fruit in the western markets, but could see no possibility of a change in the near future. In Calgary and some other western towns, Elberta peaches are unknown by that name and sell as Crawfords giving general satisfaction. In Winnipeg, however, the Elberta is known as a first-class peach.

Dairy and Cold Storage Commissioner, J. A. Ruddick, is spending a few weeks holidays in Prince Edward Island, this being the first real vacation he has had since entering the government service 20 years ago. Mr. Ruddick's department is arranging for trial shipments of peaches and other fruits to Great Britain this year.

Mr. Robt. Brodie of Notre Dame de Grace, Montreal, reports the sale of the old garden belonging to the late John Molson, at the corner of St. Lawrence Main and Sherbrooke streets, Montreal, in which was originated the St. Lawrence apple in 1878. The stump of the old tree was still there recently.

The British Columbia Fruit Growers' Association is preparing a list of wholesale and retail fruit dealers in the prairie provinces and British Columbia, which will be distributed to members.

Don'ts for Campers

1. Don't, when in the woods, throw down a lighted match, cigar stub or other flaming object; make sure that the flame has been thoroughly extinguished before throwing it away.

2. Don't build your campfire larger than is necessary.

3. Don't, under any circumstances, leave your fire unguarded, even for a comparatively short time; see that it is dead out before you go away.

4. Don't build your fire in leaves, rotten wood or other inflammable material.

5. Don't build your fire against a large or hollow log, where it is hard to be sure when it has been entirely put out.

To these "don'ts" it may be added that, in windy weather or in a dangerous place, it is well to confine the fire in a hole dug clean down to the mineral soil. A fire may smoulder in the humus, or "duff," for days, only waiting for a strong breeze to fan it into a flame that may burn over miles of timber.

Summer tourists and campers unfortunately have a bad reputation among owners of timber as being often a cause of fires. Such fires could be prevented, almost without exception, by a little extra care on the part of the campers, who have been the unintentional cause of much forest destruction, and who have just as real an interest in the preservation of the forests as the owners of the timber themselves. The rules given above are the result of long experience and observation on the part of many woodsmen and lumbermen as to the origin of fires from this cause, and are earnestly commended to the attention of campers, sportsmen and others.

Renew your subscription now.

AGENTS WANTED
to handle our goods.



Every Fruit Grower should use the Perfect Fruit Picking Step Ladder

It is [the only Ladder on the market which is purposely made for fruit picking and which can be used for a general purpose step ladder.

Made in three lengths—

6 feet extended to 11 feet

8 feet extended to 15 feet

10 feet extended to 19 feet

WE ALSO MAKE ALL KINDS OF

Step, Single and Roped Extension Ladders

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The Stratford Manufacturing Co., Ltd.
Stratford, Canada

The Canadian Horticulturist

Vol. XXXIII

AUGUST, 1910

No. 8

Fertilizers for the Orchard and Market Garden

A. E. Slater, O. A. C., Guelph, Ont.

THE use of artificial fertilizers by market-gardeners and fruit-growers of late years has increased very considerably.

It is beginning to be generally recognized that fertilizers yield their best returns when applied to vegetable crops, and unless there be an abundant available supply of farmyard manure, it is a difficult matter to produce the maximum crop on a small piece of land without enrichment of the soil.

Many successful market-gardeners in the United States look upon artificial fertilizers as a very necessary adjunct to farmyard manure, and use it accordingly. Farmyard manure, while adding humus to the soil, and improving its physical texture and water holding power as nothing else can, does not, however, supply large amounts of fertilizing substances, and what is supplied is in a more or less unavailable form and cannot be used directly by the plant. For instance, there is no better method of

slowly building up the fertility of any soil than through the continued application of barnyard manure, and the ploughing down of leguminous crops, but if we want immediate results, as for instance the quick forcing and bringing to maturity of a crop of lettuce or radishes,

desires to check leaf and wood growth to a great extent and to stimulate the formation of fruit; the gardener desires to stimulate leaf growth, and does all in his power to do so, and further, his crops are harvested in the green or immature state.

THE PARTS THEY PLAY

Let us then look at the part that nitrogen, phosphoric acid and potash play in plant development. Nitrogen forces particularly leaf and stem growth, and thus induces rankness. Heavy applications late in the growing season, therefore, will hinder maturity and check development of fruit. The quickest acting, most soluble fertilizer containing nitrogen, is nitrate of soda. This material should be applied frequently in small quantities, rather than in one application, because of the ease with which it is leached from the soil. It can be applied very profitably to lettuce, radishes, celery, etc., in frequent small applications, but care must be taken to



Pear Tree

Fertilized with Phosphoric Acid and Nitrogen.

or a good, heavy, well-matured crop of tomatoes, we must adopt other means.

THREE ESSENTIALS

Three substances particularly are needed for the growth of all plants: Nitrogen, phosphoric acid and potash. A man who does not understand the nature of these three substances, or the individual effect each one of them has on the growth of the plant, cannot apply fertilizers successfully.

The first essential is to distinguish between the method of fertilizing used by the market-gardener and that of the fruit-grower. The market-gardener usually wants to raise a leaf crop, as for instance lettuce, radish, cabbage, cauliflower and so forth, or a tuber crop, as potatoes, carrots, beets. The fruit-grower, on the other hand, is continually aiming towards the production of fruit, particularly fruit of early maturity. He



Pear Tree

No fertilizer applied.



Pear Tree

Fertilizer: Potash, Phosphoric Acid, Nitrogen.



Apple Tree
No fertilizer.

avoid sprinkling it on the leaves, as burning may result.

Phosphoric acid aids particularly in the formation of the fruit, and, it is thought, tends to produce earliness also. If phosphoric acid is deficient in the soil, any fruit or grain crop will invariably be found to be poor and light. For the market gardener looking for rapid returns a soluble form of phosphoric acid, as superphosphate, is the best to apply, at the rate of about 200 lbs. an acre, harrowed in about two weeks before seeding. For the fruit-grower, where growth is continuous and the results looked for not immediate, a cheaper and less soluble form may be applied, as ground bone, or basic slag, at the rate of about 500-600 lbs. an acre. Cultivation will then tend to slowly bring it into solution.

POTASH AIDS FRUIT PRODUCTION

Potash, though less apt to be deficient in a soil than either nitrogen or phosphoric acid, plays a more important part in plant growth. It aids in the formation of sugar and starch particularly, and thus in the production of fruit. It is also important in the building up of new tissues and wood. By some it is claimed to have some influence in the coloring of fruits, but this is doubtful. However, it has been shown conclusively that heavy applications of wood ashes have given excellent returns in the orchard and are one of the best forms in which to apply potash to the soil. The commercial form is muriate of potash, which is usually applied at the rate of about 200 lbs. an acre before seeding, and harrowed in.

It must be remembered that maximum

crops can never be raised unless the three fertilizing substances, nitrogen, phosphoric acid and potash, are all present in sufficient quantities for healthy and normal plant growth. If any one of these be wanting, growth is checked. Therefore, to land which is poor and unproductive, the application of all three will usually give good returns, no matter whether the crop be grown for leaf or fruit. But if the land is rich and productive then production can be pushed to its maximum limit, by applying the one which the particular crop grown stands most in need of, and the foregoing suggestions have been offered as a guide.

DEMANDS ON SOIL DIFFERENT

In the fertilizing of orchards it must be remembered, also, that the relation of fruit growing to soil exhaustion is very different from that in general crop farming, because in the orchard there is an annual demand for specific kinds and definite proportions of plant food. It is really a continuous cropping of the same kind, and there is no opportunity, as in the case of ordinary farm crops, to correct the tendency to exhaustion by a frequent change of crops, or the frequent growth of those which require different kinds and amounts to plant constituents. By the sale of fruit, large quantities of potash and phosphoric acid are annually being sold off the orchard, and in most cases no return of these constituents is made to the soil.

In the matter of berries, which are crops especially well adapted to light soils, soils, however, which are not naturally supplied with sufficient amounts



Apple Tree
Complete Fertilizer: Potash, Phosphoric Acid,
Nitrogen.

of the essential plant constituents, proper fertilizing becomes even more important than for the tree fruits, which are usually grown on heavier land richer in plant food. They are, as a rule, crops which require a shorter preparatory season, and have a shorter period of bearing life, and therefore the more quickly available materials should be applied, as nitrate of soda, or dried blood, superphosphate and muriate of potash.

In the case of vegetables, the soil must always be kept up to its highest productive capacity by the liberal use of farmyard manure, supplemented with fertilizers. With the high cost of labor, clearly the most profitable results should be obtained by placing the soil in the best possible condition to raise large amounts from small areas. A small market-garden, well cultivated and liberally manured, here, as in Europe, should yield better returns than a larger acreage carelessly handled through lack of help.

Cover Crops in the Orchard.

Grant S. Peart, Burlington, Ont.

Sowing cover crops in orchards, where clean cultivation is practised, is one of the essentials of successful fruit growing. Not the apple orchard alone is benefited by it, but all the tree fruits, including the vineyard. We have practised growing different sorts of cover crops in orchards with excellent results. Our experience indicates that leguminous crops are preferable, especially where growth of wood is required; in other words, where soils are poor in nitrogen. The field pea is admirably adapted for this purpose. It possesses the power of growing quickly, thus producing a rank growth, and is not confined to any particular climatic change.

The hairy vetch and crimson clover may be used with satisfactory results also, but the vetch is difficult to eradicate. The crimson clover is grown with success in Southern Ontario, but is confined to that district. Red and alsike clover do not make sufficient growth. When cereals are sown, rye and winter wheat are better qualified than barley or oats as cover crops, on account of their hardiness.

DATE OF SOWING

The time of sowing and quantity of seed required depends on the crop. A heavy seeding should be applied. Two bushels per acre of cereals and peas or twenty pounds of crimson clover seed is an accurate estimate. It is well to harrow and roll the land after sowing the clover. The crimson clover should be sown during the latter part of July; oats, peas, and wheat the last week of August; and rye the first week of September.

All orchards with cover crops should be ploughed early in the spring. It will

be found necessary to use a chain on the plough, and in addition a rolling coulter when ploughing clovers and peas. Also, when cover crops are grown in young orchards, the trees should be protected from the attacks of mice. The advantages of a cover crop include the following: 1, It protects the roots of trees from frost during the winter months. 2, It

tends to develop and mature the fruit by drawing the excessive moisture from the soil. Apples seem to take on a better color and quality. 3, By adding humus to soils it increases their moisture-holding powers and makes them more fertile. 4, It is a cheap way of fertilizing the soil. This can be done at about one half the cost of applying stable manure.

consolidates the various pests, namely, San Jose Scale, Yellows, Little Peach, Black Knot, Pear Psylla, and Pear Blight, under one act, and gives power to the Lieutenant-Governor in Council to add any other disease to the act. It provides that the provincial government shall pay one half of all the moneys paid to inspectors under this act. Formerly this provision only extended to the San Jose Scale.

The San Jose Scale and the Fruit Pests Act

By "Weary Worm" Winona, Ont.

AS far as the Niagara District is concerned, the San Jose scale is fairly well under control. It is not spreading to any great extent; indeed, in the western end of the peninsula it is much less prevalent than it was a few years ago. In some of the outlying districts, however, especially where fruit growing is not the main industry, it is spreading rapidly.

Legislative efforts to control this pest have been far from perfect. In many respects, however, the new act of the Ontario Legislature, which has recently come in force (this act supersedes the old acts known as The Yellow and Black Knot Acts, the Noxious Insect Act, and the San Jose Scale Act) is a distinct improvement. In others it still repeats some of the old weaknesses.

The following are the chief reasons why scale control is difficult: From the beginning a considerable number of fruit growers have been either bitterly hostile or else careless and indifferent to the enforcement of any stringent regulations in this matter. This spirit is largely dying out, but there are still a certain number of such persons left; and, indeed, many of the large and most up-to-date fruit growers are utterly indifferent as to whether their neighbors treat the scale or not. "We are going to spray all our trees every year with lime and sulphur anyway, and if they do not spray they will have to pay the penalty," is what they say.

One of the chief causes of failure has been that persons occupying the office of local inspectors have not been sufficiently well posted to have the full confidence of the fruit growers. Great responsibility rests upon these men. It is absolutely necessary for them to be thoroughly posted in all the symptoms of scale, yellows, little peach, and so forth, so as to educate the local fruit growers up to the point of appreciating the vast importance to themselves of a proper inspection of their orchards every season. Too often such appointments have been made from a political standpoint chiefly, and not from the standpoint of efficiency, whereas efficiency should be the main consideration. These remarks apply to the provincial inspector as well.

The provincial inspector should be so

thoroughly qualified in all these matters as to be able, before sending his staff out to work in the beginning of the season, to instruct them thoroughly in all the different symptoms of the various diseases and insects, and he should allow no man to go out as a local inspector unless he can satisfy him that he is so

Power is given to the reeve or mayor, upon the report of the local inspector, to have diseased plants sprayed—after ten days' notice to the proprietor—and the cost charged on the lot and collected as a special tax by the municipality.

Local inspectors are subject and subordinate to the head inspectors appointed by the Minister of Agriculture. In case of any neglect of duty such inspectors



Interested Farmers Learning How to Spray and How to Prune

In each of the six demonstration orchards in the Georgian Bay District, Ont., that were described in the July issue of *The Canadian Horticulturist*, practical demonstrations were given for the benefit of those who wished to learn. The illustration shows those who attended the meeting in the orchard owned by Mr. W. Hamilton, Collingwood, Ont. The Ontario Department of Agriculture should extend this work next year to a number of the other best orchard sections throughout the province. Photo by I. F. Metcalfe.

qualified. But if the chief inspector is not thoroughly qualified in these respects himself, how can he instruct his subordinates? This has been a fatal cause of weakness in the past, for to my certain knowledge men have been appointed as local inspectors who did not know the San Jose scale from any other scale, who were totally unacquainted with the symptoms of "Yellows," and who did not even know there was such a disease as "Little Peach."

THE SALARY QUESTION

The new act, as did the old, leaves the question of payment entirely to the municipality who appoints the inspectors. Too often municipal councils want to pay the lowest possible price, instead of paying an amount large enough to secure good men. A remedy for this would be for the provincial authorities to fix the rate of remuneration at a rate sufficiently high to secure such men.

In the following respects, however, the new act is a distinct improvement. It

are subject to the penalties prescribed by this act.

The following are two of the chief weaknesses of the act. It provides that the appointment of inspectors remains in force only for the calendar year in which it is passed. It should not be necessary to set the whole machinery in motion every year. Careless and indifferent townships are apt to neglect the renewal of appointments till too late, and then the inspectors have no legal status and these townships go uninspected. Local inspectors should be appointed for longer periods, ample provision being made for new appointments, as also for removal if necessary. Where the local inspectors report that trees should be destroyed there is not sufficient provision made for prompt action. It is all left to the municipality notifying the Minister. In practice this is a great source of weakness. A certain time should be allowed (say 10 days) for the owner to appeal either to a board or

to a special inspector appointed for this purpose, in default of which the inspector should have power to go on and destroy the trees, and the cost should be a special tax upon the lot to be collected by the municipality. I have known of many cases of orchards, rightly condemned for "Yellows," where the trees have been left standing for months, a deadly source of infection to the whole neighbourhood.

After all it is the fruit growers themselves upon whom the whole matter depends. The township of Saltfleet, in which I live, is one of the best inspected townships in Ontario. Why? Simply because the fruit growers are fully alive to the importance of the situation, and insist on the municipality making proper provision for the inspection. Several attempts have been made to reduce the pay of the inspectors, etc., and they have always been overwhelmed by public opinion. The cost of efficient inspection need not press much on the individual

taxpayer. But the inspectors should be well paid for the work they do. In the township referred to the total amount paid out for inspection for the year 1909 was \$517.65. Half of this is now paid by the provincial government, leaving only about \$260 to be paid by the taxpayers, or considerably under \$1.00 each.

Most of the fruit growers could not possibly inspect their own trees for the money. When they are properly educated, as they are here, they are only too willing to have it done. That is why the inspectors require not only to be men of firmness in doing their duty, but also men of tact and information as well, who can command the confidence and respect of the growers, and educate them up to be willing and eager to have their trees inspected. Where such a class of men are appointed, the present act—its weaknesses notwithstanding—will work fairly well, and where such men are not secured, it will be more or less of a failure.

Boxes vs. Barrels in the East*

Dr. S. W. Fletcher, Director of Virginia Agricultural Experiment Station

The drift is all towards the use of the box as against the barrel package. This is in keeping with the trend of the times with respect to other commodities. The box package, or at least the smaller type of package, will some time entirely supplant the barrel. The smaller package will not necessarily be made of wood. We can expect the wooden package to be replaced, eventually, by paper, celluloid, or some other cheap material. Even now some very substantial paper boxes are on the market. When speaking of the box type of package, therefore, we refer to the size and shape of package, rather than to the material.

While the box type of package is the ideal towards which we are rapidly working, it by no means follows that every eastern fruit grower should begin packing in boxes at once. He should begin only when he is ready; and nine-tenths of the growers are not ready. To be ready for box packing means that the grower can get good boxes about as cheap as barrels, bushel for bushel; that he is able to grow a crop of fruit, preferably of high quality varieties, at least 90% of which is fancy or No. 1; that he is able to command skilful and experienced packers; that he is able to put a large quantity of box fruit on the market, not one year only, but year after year, so as to win a reputation for the brand; and that he ships his fruit to markets that are already familiar with the box pack and take kindly to it. At the present time not one apple grower out of ten

in the east is able to meet these conditions.

With respect to the market, the fruit grower must recognize the different demands of two entirely different types of markets. One of these, the common or general market, will pay a fair price for good or common stock. The other, the special or fancy market, will pay a fancy price for fancy stock. The box package supplies the special or fancy market almost exclusively, while the barrel package supplies both, but more especially the common or general market. These two classes of markets will always exist, or as long as some people are more successful in accumulating money than others.

The demand for cheap or common fruit, at a fair price, will continue to be very much greater than the demand for fancy fruit at a high price, because there are many people who are able to pay fancy prices for fruit. The proportion of fruit growers who are able to grow fancy fruit is as small as the proportion of consumers who are able to pay fancy prices. Location, soil, and the varieties best adapted thereto may make it more profitable to grow staple varieties for the common market. This cheap fruit—the main supply of the great middle class of people—will be marketed in barrels to best advantage for many years to come.

The successful marketing of apples in boxes depends so much upon skilful grading and packing and upon the possession of a large quantity of fruit so packed, that it seems likely that very little impetus will be given to box packing in the east except through co-opera-

tive shipping associations. Here and there an exceptional grower may find it profitable to pack his fancy grade of certain varieties in boxes; but it does not seem probable that box packing will make much headway in the east except through the co-operative shipping association, with its trained business manager and its crew of trained packers.

These conclusions indicate that the eastern fruit grower should be conservative on the subject of the box apple package. The drift is towards the smaller package, but for many years to come, apple growers who are so situated that they must produce apples for the general or common markets—which means a majority of the growers—will find the barrel more profitable.

Training Blackberries

Tying up blackberry canes makes cultivation of the berry patch easier, and facilitates all the labor that has to do with the management of a blackberry plantation. Instead of using two wires along which to train the canes, Mr. W. H. French, of Ontario County, Ont., uses only one. "I place my posts about sixteen yards apart in the rows of blackberries," said Mr. French to an editor of THE CANADIAN HORTICULTURIST, who visited his plantation, "and between them stretch only one wire, to which the canes are tied with stout cord such as binder twine. I have used other methods of tying the canes but prefer this one, as it is more quickly performed than staking and requires less labor and work than where two wires are used. I use barbed wire so that the twine will not slip.

BIENNIAL IN HABIT

Growers should bear in mind that the canes are biennial in habit while the roots are perennial; that is, the canes grow one year without fruit and bear the following year. They should then be removed to give space for younger wood.

Mr. John Ferguson, of Sunbury County, N. B., writes that he removes the old canes as soon as the picking is finished. The canes are cut down close to the ground with a corn knife, or, better still, with a short blade fastened into a two inch handle. Thus the principal canes are shortened to four or five feet, and the laterals to about twenty inches. By pruning in this way, Mr. Ferguson has found that the fruit is larger, and that the setting of more fruit than the plant will bear is prevented.

The old canes are gathered up immediately after the pruning has been completed and burned immediately. Mr. Ferguson uses two wires stretched from post to post. The new canes are lifted and supported on these wires. The suckers which come up between the wires are treated as weeds.

* A portion of a paper read at the conference of the American Pomological Society at St. Catharines, Ont., last September.

The Amateur's Flower Garden in August

Wm. Hunt, O.A.C., Guelph, Ont.

DUTCH hyacinth and tulip bulbs that were dug up from flower beds or borders in May, to make room for summer bedding plants, and heeled in temporarily to dry off and ripen, should now be lifted or dug up, and dried ready for fall planting. It is best to dig the bulbs early in August before they commence to root, which they often do if the weather is not very dry. When bulbs have once started root action it is not advisable to disturb them, hence the necessity of lifting them up from their temporary quarters now and drying them.

Dig the bulbs carefully and remove any top growth there may be—which will be very little, if any—and any soil adhering to them. Spread the bulbs out in shallow boxes or flats one layer deep. The boxes should then be placed in a dry airy shed or room for a week or two until fairly dry. Then place them away in a rather dry, cool cellar or room until planting time in October.

THE BULBS TO PLANT

To ensure the best results with bulbs

treated in this way, only the large, sound bulbs should be planted. These will give good results for three years as a rule. The small offsets or bulbils will not produce flowers the first season. It is better to plant them in October in groups thickly in the permanent border where they may grow on into flowering bulbs in a year or two if left undisturbed. Considering the low price of bulbs, it is scarcely worth the trouble to bother with the small bulbs or offsets.

HARDY ROSES

Rose lovers should watch their rose bushes closely to see if there are any suckers or spurious growth of briar or manetti growing up among the bushes. The manetti or briar growth can easily be recognized from the growth of the rose proper from the fact that the leaves are much narrower and often differ in color to the foliage of the rose growth. These suckers should be removed at the point where they spring from the stem or root of the briar or manetti. It may

be necessary to partially remove the soil in many cases to do this.

Cutting off the tops of this spurious growth is only a temporary remedy and induces even a stronger and more profuse amount of this growth. If left undisturbed, this growth of briars will eventually kill out the rose proper, as has often happened, leaving the rose lover a plant that will produce nothing but briar growth or at the best only a few wild briar roses. This spurious briar growth is, of course, only produced on roses that are budded or grafted on briar or manetti stocks as most hardy roses are.

Rose bushes on their own roots raised from cuttings do not have this objectionable feature, as all the growth produced is real rose growth, the same as the original rose. Roses on their own roots with some varieties may not be as vigorous as budded or grafted bushes, but they are more enduring. I know of rose bushes of the General Jacqueminot that I rooted from cuttings in 1883 that still produce a profusion of roses every year, whilst budded and grafted varieties



Trillium Grandiflorum

Anemone Pennsylvanica

The desire to have wild flowers growing around our homes is a natural one, and its gratification is quite feasible. The right time to transfer such varieties as the beautiful trilliums and anemones from their native woods to the garden is not when they are in bloom, but when their year's growth is perfected which is about this season. Care must be taken not to be reckless in digging up so many as to practically exterminate them in any one locality. The White trillium, sometimes called the Wood Lilly, is so well known that little need be said about it. If the tubers are dug up in late summer or early fall and planted in a soil with plenty of rotted leaves or humus in it a good crop of flowers will delight you. Nearly all of them like a partial shade. Next spring and the year after they will increase in number and size. All these early wild flowers are most satisfactory when several are planted in a group. In a circular space two feet in diameter ten or twelve tubers might be planted. The Pennsylvanian anemone is found growing at the borders of woods and on the sides of railway embankments and ditches. It makes a very showy addition to the hardy garden. It spreads by underground runners, and if allowed will soon monopolize the surrounding area. It blooms for two or three weeks. These as well as several other varieties of wild flowers, if planted as indicated, will be a source of pleasure for years to those interested, and will be admired by all flower lovers.

grown near them have been replaced two or three times during that period. Own root roses will become more popular than they are at present for this reason.

The haws or seed pods on rose bushes should be cut off at once, if not already done, as they tend to weaken the plant and prevent the best results being obtained in the production of good strong growth for next season's crop of roses. This should be done on both bush and climbing roses as soon as the roses have dropped.

Some of the weaker shoots or young canes of climbing roses may be thinned out a little if they are very dense and numerous. This will give more chance for the young canes that are left to grow and ripen before winter sets in. Do not remove too many as winter killing must be allowed for. Only the small, weak canes should be cut off. These should be cut off close to the ground or close to the older growth.

Black spot and mildew may perhaps appear on the leaves of roses. A spraying with Bordeaux mixture will keep down the black spot fungus that often causes the leaves to drop off at this season of the year. For mildew dust the plants well with flour of sulphur and do not water or spray the bushes with water on cold, chilly evenings.

A mulching of well-rotted barnyard manure an inch or two in depth spread around under the bushes will prevent them drying out, and assist the growth of the young wood. The mulch should not be placed close to the stem of the bush.

PAEONIES

The seed pods of paeonies should be cut off if not already done. It is best to do it as soon as the flowers have dropped their petals. A mulching of manure as suggested for the roses will not hurt the paeonies, although it is not as beneficial to them as for the roses, especially if the ground they are in is fairly rich in fertilizers.

The seed beds of gladioli should be removed so as to help the lateral or side spikes of bloom.

PANSIES

Seeds of pansies should be sown about the second or third week in August for early flowering re-

sults next spring. Sow the seeds in rather light rich soil, one part leaf mould, one part sand, four or five parts of good loamy soil well enriched with dry cow manure. Sow in a shallow, well-drained box or flat out of doors. Transplant into larger or other boxes in September, or plant out in a cold frame in soil similar to that mentioned. Pansies should be shaded from very hot sun at all times, especially in the seedling stage.

SWEET PEAS

Sweet peas should be well watered in dry weather if they are expected to continue in flower until fall. The ground must be thoroughly soaked. Mere surface waterings are useless, as sweet peas root very deeply. Make a small trench about two inches deep with a hoe a few inches from the stems and let the water run into it from a hose if possible. A thorough watering once a week is better than surface waterings every day.

A little weak liquid fertilizer could be given them to advantage sometimes. Dissolve an ounce of nitrate of soda in two gallons of water and apply to the roots only. Two gallons of the solution would be sufficient for every ten or twelve feet of the row. A liquid solution made from fresh cow manure could also be given to advantage. This can scarcely be made too strong or too much applied if only applied about once a week. Keep seed pods and flowers constantly picked off.

Prepare Your Paeony Beds Now

John Cavers, Oakville, Ont.

There is no plant that will yield such magnificent results in annual bloom and increase of plant growth for eight to ten years for the cost of the investment and the annual care required as the paeony. But some requisites are necessary to secure these results.

Do not buy merely "Paeonies." One paeony is not as good as any other. Select varieties as carefully as you would varieties of fruit trees. If you want a good, reliable, early white the old favorite, Festiva Maxima, will give satisfaction. If you want a late white "Couronne d'Or" will please most people. If a pink be wanted, then one, "Achille," a flesh pink, and "Edulis Superba," a violaceous pink—both at moderate cost.

PLANT IN SEPTEMBER

It is contrary to all experience in this latitude to say that the best time to plant is the spring. The ground for planting should be prepared now, without delay, in order that it may become firm before planting. The deeper and richer the soil is made with well rotted manure the better the results will be in the years to come. Tubers of any sort should not be planted in contact with manure.

It should be remembered that the plant is to remain undisturbed for eight to ten years; that the drain on the soil to produce the luxuriant annual crop of foliage and stem and bloom is exhaustive; and that there is no source of unproductive-



"A lily cup was growing, where the streamlet tide was flowing.
And rich with grace and beauty there it bent,

And passed the whole day long, in dancing to the song,
Each gurgling rivulet murmured as it went."

ness so common as poverty or exhaustion of the soil in the case of plants that have not been moved for many years.

In addition to making the soil rich and



Three-Year-Old Paeony "Edulis Superba."

deep before planting annual dressings of manure should be given. Give each plant a space of at least ten square feet. The planting may be singly or in groups in the hardy plant border, in full sunshine or in partial shade; or in beds specially laid out and prepared. What can be finer than the bloom in June, or the luxuriance of plant-growth from the earliest stages until the time of killing frosts in the fall, of a bed of say twenty-five "Festiva Maxima?"

Insects on Rose Bushes

"I have a rose bush covered with green lice. Have used Paris green and kerosene with no results. Will you kindly recommend a good spray?"—P. V. G., Stirling, Ont.

The best remedy for green aphid or green lice is to spray with strong tobacco solution. Sulpho Tobacco Soap and Rose Leaf Extract of Tobacco are both good and are sold in small quantities at seed stores. Spraying the bushes with water or soapy water under pressure will also dispose of a great many of the green aphids. —W. Hunt, O.A.C., Guelph.

Coal Ashes as a Fertilizer

What effect will coal ashes have in a garden? The soil is a clay loam.—M. F. C., Ailsa Craig, Ont.

Coal ashes do not contain any of the fertilizer constituents in appreciable quantities, with possibly the exception of lime. Lime is always beneficial to clay soil as it acts as a liberator of potash. Coal ashes will be slightly beneficial to the soil and will not be detrimental in any way unless applied in very large quantities; however, they are of so little value that I would not advise their use in the garden. I would rather get good lime and add it than depend upon the lime of the ashes.—Prof. R. Harcourt, O.A.C., Guelph, Ont.

The Perennial Border

C. Waters, Port Hope, Ont.

The formation of a perennial border necessarily takes the shape of a slope or bank, caused not by the soil, but by the different heights of the plants themselves. Although this is requisite from a spectacular point of view, it has the disadvantage of the low growing varieties in the front flowering in the spring, while the taller growing sorts flower in the summer and autumn months. To obviate this, and to soften the formality, it is well to have sufficient space between the perennials in the front of the border to sow or plant some one or more of the showy hardy annuals, such as nasturtiums, Shirley and French double poppies, marigolds, and others.

The border shown in illustration has as a background Golden Glow, alternated with spirea palmata in front of which come delphiniums, lilium candidum, phlox, German iris, hollyhocks, in front again are paeonies, aquilegias, and oriental poppy. The edge is composed of daffodils, narcissi, polyanthus, for-

It was strongly manured and dug over before being planted.

The hedge having become overgrown has now been cut out and replaced by a 4.6 foot wire fence with virginia creepers planted at intervals of four feet. These are now covering the wires, giving a background of green in the summer and a glorious variegation of color in the fall.

Lawn and Garden Hints

A little attention to the flower garden at this time of the year will be well repaid by the increased quantity of bloom which may be secured. Keep all seed pods picked off of annuals, except any which you may desire to save for seed for next year. A great deal of vitality is required to develop seeds, and where these are allowed to form the flowers soon stop blooming. Antirrhinum or Snapdragon will be encouraged to yield a second crop of flowers by keeping all seed pods picked off.

Keep sweet peas and all annuals well watered. Do the watering in the evening if possible. Never give overhead



Flower Bed and Perennial Border in Garden of Mr. Barlow Cumberland, "Dunain," Port Hope, Ont.

See article on Perennial Border on this page.

get-me-not, and campanulas of different varieties. A border arranged in this manner will give a succession of bloom from early spring until late fall.

The great advantage of a bed of this kind is that the perennials re-appear year after year, and require but little attention beyond thinning out. In the late fall a protection of straw and leaves is placed over the bed to prevent winter frost. The removal of this and an early weeding in the spring constitutes the work.

The bed illustrated is planted along a straight privet hedge, from which it spreads outward in a low curve from four feet deep at the ends to sixteen feet in the centre, and bordered by a path in front.

watering to sweet peas during the heat of the day, especially if they are suffering for want of water. Keep the ground well cultivated where possible after a rain, to conserve moisture.

Keep all old flowers cut off your rose bushes. If troubled with green fly spray the bushes with nicotine or a solution of soft soap. The latter may be prepared by dissolving soft soap about the size of a walnut in two or three gallons of water. Roses may be budded this month. In this way undesirable varieties may be converted into desirable varieties.

See that dahlias are well fertilized while the buds are swelling. This will insure much larger blooms.

See that gladioli, hollyhocks, and all tall blooming perennials are staked, if liable to be broken by the wind. Seeds of hollyhocks, delphinium, aquilegia, campanula, coreopsis, gaillardia, papaver, and some other herbaceous perennials may be planted this month and transplanted to the border late this fall or early next spring. Pansy seed also may be sown in shallow boxes to be ready for transplanting later on into winter quarters. A mixture of leaf mould and loam will give good results with pansies.

Tulips which have been planted out in ripening beds after they were through blooming should now be lifted and cleaned off and packed away in shallow boxes until thoroughly dry. Do not expose them to the sun while drying. As soon as dry pack them away in the cellar until time for planting in the fall.

AMONG THE FRUITS

Keep all runners cleaned off of fresh strawberry beds between the rows. If allowed to grow they will tend to weaken the young plants. Plants desired for a new patch should be allowed to root, and may be transplanted at the end of the month. Old strawberry beds which are to be left for next year should be kept well cultivated between the rows.

Do not neglect the small fruit bushes after the fruit is picked off. Keep them well cultivated. The result will be an increased crop next year. Cut out unnecessary suckers of blackberries and raspberries.

Toward the end of the month pinch the growing ends off tomato plants to force all the nourishment of the plant into the growing and ripening of the fruit which has already formed.

VEGETABLES

Where some of the earlier vegetables have been harvested the space can be used again to good advantage for the growing of string beans, lettuce, spinach, radishes, or beets for greens. The early crop of celery should be blanched. Use either earth or boards for blanching. An application of liquid manure, keep them growing. Cucumbers may still be planted in cold frames for a late crop.

Keep onions well fed and watered to previous to blanching, will be beneficial.

THE LAWN

Do not cut the lawn too often or too close during the hot weather. Once in ten days is often enough. Lower the roller of the lawn mower so as not to cut the grass too closely. Always keep a look out for dandelions and other weeds and keep them picked out.

If you intend to mulch the lawn this fall prepare the material now by securing equal parts of good clean soil and well-rotted stable manure. Mix these together and turn occasionally until October when it will be ready for use.

More about Mushrooms

J. McPherson Ross, Toronto, Ont.

BEDS for mushrooms may be made any time now, if for home use. To grow them for profit it would be better to wait till November, so that your crop coming in about February, would meet the best market and highest prices.

If you have had no former experience it would be well to start now, selecting a place, if possible, under cover from the weather, as a shed or outbuilding.

For winter cultivation, it will be necessary to have the bed in a cellar or some place where the temperature can be kept at from 50 to 60 degrees. Of course you may make one outdoors, at the back of the house or in a dry corner. In such an event dig out the soil, say six inches deep, the size you want to make the bed. In this excavation place the prepared manure.

CARE REQUIRED

Too much care cannot be given to preparing the manure. Do not be deterred by the words "too much care," from beginning to collect the droppings of well-fed horses, spreading them out thinly, so as not to heat too rapidly, adding an equal quantity of ordinary clean garden soil, and mix evenly. Turn this daily, as you add fresh manure, till you have sufficient for your bed. The amount you will require will be determined by the size of the bed you are to make. Turning daily allows the rank steam to escape and also prevents the manure getting too dry by excessive heating or burning.

Many persons are under the impression that to grow mushrooms, the manure should be old and well rotted. This is a mistake. Where there is old manure it can be used by adding to it fresh manure to serve for beds, but it pays to have the material carefully saved under cover.

EASILY SECURED

Mushrooms, although a great delicacy and a luxury, can be secured with but a little trouble. They possess in

themselves the same nutritive qualities as beef-steak. In their composition they are analogous to animal life, being entirely different to the vegetable kingdom, inhaling oxygen and exhaling carbonic gas.

In preparing a bed, the chief care should be to pound the material firmly. This has the effect of retaining the heat much longer and allows the mycelium to travel more rapidly through the mass.

With material properly prepared, it is easy to spawn your lawn or nearby meadows. This is done simply by digging holes at intervals, say eighteen inches deep, and a foot or more wide. Fill them with manure and after some days lay the sod back on top, after inserting a piece of spawn.

The mixing of soil through the manure when preparing, helps to retain the ammonia. It also serves to moderate the heat and to retain moisture more evenly. As a general rule the spawn in bricks is all right so long as the heat of the bed is receding and not over 90 degrees when you put it in. Beds have been spawned at as low a temperature as 60 degrees, and then made good, but my experience proves that 85 to 90 degrees is right.

Do not cover the bed until eight to ten days after it is spawned. It is essential to success never to put on the soil cover before that time elapses. This allows the hot steam to escape which if retained would kill the spawn. Instead of putting loose soil on, a good plan, where you can, is to secure good sods to cover with. When putting them on, lay the grass side down on the bed.

So many persons term good edible varieties of mushrooms toadstools that I would like to say here that the terms are synonymous. There are 112 edible varieties of mushrooms; in fact, they are all edible with the exception of about six poisonous kinds. These were described



Celery



Celery

Complete Fertilizer: Potash, Phosphoric Acid, Nitrogen. See introductory article, page 183.

and illustrated in the May, 1907, issue of The Canadian Horticulturist. All the rest can be eaten with impunity.

Two excellent and delicious varieties are the Shaggy Mane, commonly called around Toronto the "French Morel," gathered in the vicinity of the Don River and eaten with a relish. Its first cousin is called the Ink Mushroom. Bushels of these two mushrooms annually rot in lawns and fields instead of being gathered and enjoyed by the people through ignorance or fear of being poisoned.

The puffball, when gathered in the early stages of growth, makes a pleasant and palatable dish and one which I personally like. There are numerous others, interesting to mycologists, which I will notice later, but our common mushroom, with the pink gills, is so generally well known and its culture is so easy it is not necessary to go after other varieties where this is plentiful. The technical name is "Agaricus Campestris" or meadow mushroom, sometimes called the English mushroom, in much the same way as the potato is called the Irish potato. It is the variety the brick spawn produces, although these sometimes vary, as I have found two varieties—one with a firm, dark fawn colored pileus or cap and the other variety a paler cap, but identical in flavor. Agaricus Arvensis, or horse mushroom, is so termed from its stem and larger size and also from the fact that it is to be found white gilled as well as pink. Agaricus Gambosus or St. George's mushroom, derives its name from appearing in most seasons on or about April 23. It is a compact, short-stemmed mushroom, with irregular or cracked pileus, and with a yellowish, kid-like skin and white gills. Anyone finding these mushrooms in early spring can gather and eat them with serenity.

Hot-House Vegetables

A. H. Walker, Macdonald College, Que.

Experiments have been conducted in the college greenhouses in maturing vegetables during the winter.

Tomatoes, lettuce and radishes were started at different dates during the fall and early winter for the purpose of obtaining some definite information as to the time required for the maturation of these crops during the winter months. The greenhouses in which the experiments were conducted run east and west and are made up of 4-21 feet wide ridge and furrow houses, each separated by a glass partition. The tomato tests were conducted in one of the centre houses. The south bench in this house, especially during the winter, does not receive full sunlight. It is shaded, to some extent, by the gutter, partition wall and north roof of the adjoining house. The north centre benches receive practically full light.

Duplicate tests were conducted with tomatoes on the south and north benches, results of which are here given. The plants were spaced 18 inches apart and the yield and net returns are calculated

per square foot of bench area. It will be noticed that the plantings made on the south bench, Aug. 16th and Sept. 16th, were a complete failure, while those on the north bench planted at the same time and given same conditions, except as to light, gave fair returns. The variety Livingston Globe was used. The crop netted twenty cents a pound.

As light is such a controlling factor in the winter forcing of vegetables, especially in securing a set of fruit on tomatoes, plants were spaced 17, 18, and 19 inches apart on the north bench. The results would indicate that closer than 17 inches is not advisable. It will also be noted that plants from seed started after the middle of August did not give satisfactory returns. The July planting averaging twenty-eight cents, August twenty and a half cents, and the September five and a half cents per square foot of bench area.

It will also be noted that the average of early and late sowings from date of sowing to end of harvest required 190 days, being in the bench 145 days, and the fruiting period continuing for 86 days. The average of the August sowings required 225 days from date of sowing to end of harvest, being in the bench 175 days and in fruit for 91 days. The average of September sowing was 206 days, being in the bench 151 days and in fruit for 55 days.

From plot No. 2, seed sown July 22, fruit harvested for two months. During the first month—November 19 to December 19th—35 lbs. of fruit were harvested against 6¾ lbs. for the following month, December 19th to January 19th.

On plot five, seed sown August 16th, the first fruit was ripe December 28th and continued to March 29th, practically three months, giving a fair uniform supply during these months.

On plot six, seed sown September 16th, the first fruit was ripe February 14th and lasted to April 10th, about two months, giving a very low average yield.

TOMATO EXPERIMENTS AT MACDONALD COLLEGE, QUEBEC.

Plants started at different dates, on different benches, and planted different distances apart.

Location of Bench.	No. of plot.	Distance apart. Inches	Date of seeding.	Pricked off.	Potted	Benched.	First fruit ripe.	Last fruit picked	No. of days in maturity	Yield per sq. ft. of bench area.	Returns per sq. ft. of bench area.
Centre	1	18	July 4	July 15	Aug. 1	Aug. 24	Nov. 6	Jan. 19	199	1.65	33
South	2	18	July 22	Aug. 3	Aug. 20	Sept. 21	Nov. 19	Jan. 19	181	1.06	22½
South	3	18	Aug. 16	Aug. 29	Sept. 16	Oct. 5	No fruit set and plants removed.				
South	4	18	Sept. 16	Sept. 29	Oct. 12	Nov. 8	No fruit set and plants removed.				
North	5	18	Aug. 16	Aug. 29	Sept. 16	Oct. 5	Dec. 28	Mar. 29	225	1.09	21¾
North	6	18	Sept. 16	Sept. 29	Oct. 12	Nov. 8	Feb. 14	Apr. 10	206	.28	5½
North	7	17	Aug. 16	Aug. 29	Sept. 16	Oct. 5	Dec. 28	Mar. 29	225	.885	17½
North	8	17	Sept. 16	Sept. 29	Oct. 12	Nov. 8	Feb. 14	Apr. 10	206	.305	6½
North	9	19	Aug. 16	Aug. 29	Sept. 16	Oct. 5	Dec. 28	Mar. 29	225	1.08	21¾
North	10	19	Sept. 16	Sept. 20	Oct. 12	Nov. 8	Feb. 14	Apr. 10	206	.25	5
Centre	11	18	Nov. 6	Nov. 26	Dec. 15	Jan. 19	Apr. 27	June 21	227	1.42	20

*A paper read before the Montreal Gardeners' and Florists' Club, July 4, 1910.

The Canadian Horticulturist

Published by The Horticultural
Publishing Company, Limited

PETERBORO, ONTARIO



The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF THE ONTARIO, QUEBEC, NEW
BRUNSWICK AND PRINCE EDWARD ISLAND
FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.
2. Subscription price in Canada and Great Britain, 60 cents a year; two years, \$1.00. For United States and local subscriptions in Peterboro, (not called for at the Post Office) 25 cents extra a year, including postage.
3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than \$1.00.
4. Change of Address.—When a change of address is ordered, both the old and the new addresses must be given.
5. Advertising Rates quoted on application. Copy received up to the 18th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.
6. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT.

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1909. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1909.....	9,456	January, 1910.....	8,925
February, 1909.....	9,310	February, 1910.....	8,967
March, 1909.....	9,405	March, 1910.....	9,178
April, 1909.....	9,482	April, 1910.....	9,410
May, 1909.....	9,172	May, 1910.....	9,365
June, 1909.....	8,891	June, 1910.....	9,723
July, 1909.....	8,447	July, 1910.....	9,300
August, 1909.....	8,570		
September, 1909.....	8,605		
October, 1909.....	8,675		
November, 1909.....	8,750		
December, 1909.....	8,875		

Total for the year .107,638

Average each issue in 1907, 6,627

" " " " 1908, 8,695

" " " " 1909, 8,970

Sworn detailed statements will be mailed upon application.

OUR PROTECTIVE POLICY.

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST,

PETERBORO, ONTARIO.

EDITORIAL

AN EXAMPLE FOR THE EAST

Fruit growers in Ontario and the east should draw an object lesson from the manner in which the fruit growers of British Columbia are proceeding with the arrangements for what they call the first Canadian National Apple Show. While, for reasons already pointed out in these columns, the show is likely to be more provincial than national in character, it is being planned on a scale that reflects great credit on that province. The prizes will aggregate about ten times as much as those offered at the Ontario Horticultural Exhibition. If the show is as successful as its promoters expect that it will be, and as we would all like to see it, it will make similar shows that have been held in the east look small in comparison.

There is an enthusiasm, aggressiveness and confidence in the future of their industry possessed by the growers of British Columbia that is not so manifest here in the east. We need more of it. The possibilities for development of the fruit industry in portions of eastern Canada are practically unlimited. As yet, however, they are appreciated by only a small proportion of our growers. If leaders would come to the front with plans to boom the fruit interests of Ontario and the Maritime provinces on a large scale they would soon gather an influential and enthusiastic following. There is an opportunity for good work in this direction. In the meantime we may well watch with pride and wish success to our brother growers in British Columbia in their efforts to make their first National Apple Show a success. If any of our eastern growers can assist by arranging to make exhibits it is to be hoped that they will not let the opportunity pass. In the same way steps should be taken to have as much of the western fruit as possible shown at the Ontario Horticultural Exhibition which will follow within about a week after the show in Vancouver.

THE WEAKNESS OF THE ACT

The inherent weakness of the provincial act dealing with the control of the San Jose Scale in Ontario lies in the fact that it leaves too much to be performed by the local municipalities. There are some municipalities, in which the fruit interests are important and where the growers are sufficiently wide awake to see that the act is enforced. There are others, however, where this is not the case and where in consequence it is next to impossible to induce the township councils to incur any expense to combat the scale. Then, also, the provincial inspector has not the authority he should have over the local inspectors and thus unity of effort is often conspicuous by its absence.

As long as the provincial government left the enforcement of the sanitary laws relating to cheese factories and creameries in the hands of the members of the local boards of health the regulations proved but little more than a farce. Conditions finally became so bad that the government enacted new legislation and placed its enforcement in the hands of provincial officials. The improvement that has followed has been wonderful. The enforcement of the criminal laws has been improved in the same manner by taking it largely out of the hands of county officials and investing it in one of

the departments of the provincial government.

Not until the Ontario government gets over its timidity and assumes the full responsibility for the enforcement of the San Jose Scale Act will the act be generally enforced. The importance of the fruit interests of the province requires that this should be done.

REGULATE THE BILL BOARDS

Our Canadian towns and cities still freely permit what should be attractive portions of their streets and parks to be disfigured by all forms and descriptions of unsightly bill boards. What should be handsome, scenic effects are often practically ruined by visions of ballet dancers, patent medicine bottles, household utensils and other similar obtrusions as presented in glaring colors on adjoining billboards. The worst feature of this class of advertising lies in the fact that the business enterprise of its supporters impels them to select the most prominent positions possible for their announcements. The finer the view they partly obstruct the greater is the probable value of the advertisement.

As a result of the agitation that has been conducted against this nuisance the promoters of bill board advertisements are striving to effect improvements. In this connection they are endeavoring to prevent the posting of advertisements of an undesirable character. Much, however, still remains to be done.

While it may not be advisable to do away with this form of advertising entirely, towns and cities should have the power to regulate the size and location of all billboards and the nature of the advertisements they carry. Bill boards should be restricted in size and their location should be approved by the authorities. In this respect our cities might well follow the example that has been set by European cities and derive a revenue through establishing municipal bill boards and charging for their use.

In Hamburg a company entered into a thirty year contract with the Hamburg city government for the sole right of erecting pillars for advertising purposes. In 1901, upon the expiration of the contract which called for 52 pillars, afterward increased to 100, it was renewed for another thirty years, with the provision that in 1911 the right be reserved by the city of Hamburg of demanding upon one year's notice the removal of the existing pillars. The location, size and nature of the bill boards are specified in the contract with the government. They have to be constructed in such a manner that the interior may be used by the city as receptacles for gravel, sand, tools, fountains and waste paper. As a remuneration for the license and use of these pillars the company is required to turn over to the Treasury of Hamburg twenty per cent. of its annual gross profit.

The appearance of many of our towns and cities could be vastly improved were this question dealt with by them as it should be. The Ontario Horticultural Association should arrange for a thorough discussion of this subject at its next convention. A report should be presented showing what other countries have done in the regulation of bill boards and thus public sentiment could be created and guided in Canada.

Splendid work is being done this year in Ontario by the various horticultural societies as well as by the Ontario Fruit Growers' Association in the matter of arousing a greater interest in the growing of fruit and flowers. One evidence of this is shown by the success that is attending the efforts

of these organizations to increase their membership. Large organizations which it was thought had about reached the limit of their possibilities as regards membership are showing a gratifying increase this year. Last year the membership of the Ontario Fruit Growers' Association was less than 800. Already this year it is creeping close to the 900 mark. The Toronto Horticultural Society has increased its membership from 315 last year to over 700 this year. The Hamilton Horticultural Society, which had a membership last year of about 350, has this year reached almost the 500 mark. Proportionate increases have taken place in the membership of many of the smaller societies. This evidence of increased interest in horticultural matters is gratifying and indicates that the improvement that has been especially noticeable during the past couple of years, has been natural and therefore may be expected to continue.

The minister of agriculture for Ontario has been made the subject of unfavorable criticism recently by Mr. J. W. Flavell, of Toronto, a supporter of the government and a large dealer in farm products, on the ground that the department of agriculture is not doing nearly all it might to promote the agricultural interests of the province. There are numerous ways in which the fruit industry in Ontario could be assisted with profit to the province.

The Ontario Vegetable Growers' Association has again commenced the publication of monthly crop reports. The sending out of these reports should never have been discontinued. All manner of crop reports are prepared under various auspices, including those of the Census Division of the Dominion Government, and of the Bureau of Industries of the Ontario Government, as well as those by banks and railway companies in

the west, but in every case little or no attention is paid to the gathering of authentic reports covering the condition of the leading vegetable crops. There is room, therefore, for good work in this direction by the Ontario Vegetable Growers' Association. The Association is to be commended for recognizing this fact and taking advantage of this opportunity.

The practice of planting trees to commemorate public events is not as common as we might wish. It should be revived. What are now handsome trees were planted in Canada by our present king when he visited Canada as a youth. These trees now have considerable historical interest. We should revive this means of celebrating important public events.



PUBLISHERS' DESK

Some Questions Answered

Every little while we are asked why we do not publish more reports in THE CANADIAN HORTICULTURIST about the meetings of local horticultural societies, fruit growers associations and vegetable growers organizations. One of our readers recently suggested that we should have a list printed in each issue of the paper of the names of the presidents and secretaries of the different horticultural societies, so that, those of our subscribers who might wish to get in touch with these societies would be able to do so. The same reader suggested that we should devote a page or two in each issue to the doings of the horticultural societies.

At one time THE CANADIAN HORTICULTURIST did conduct a department for horti-

cultural societies. After giving it a thorough trial it was finally discontinued. We found that the great majority of our readers were not much interested in meetings, or exhibitions held by societies other than their own. The local papers invariably printed full reports of the doings of their local societies. Thus, these reports by the time they appeared in THE CANADIAN HORTICULTURIST were of no news value and of but little interest to those of our readers who should have been most interested in them. We found further, that owing to the fact that THE CANADIAN HORTICULTURIST circulates in all parts of the Dominion there were so many events of this kind taking place each month throughout Canada that it was an utter impossibility to report them at all fully, and nothing else was considered satisfactory, in the limited space at our disposal.

The majority of the readers of THE CANADIAN HORTICULTURIST prefer to see articles dealing with the culture of fruit, flowers and vegetables, to reading a large number of reports of meetings in which they are not directly interested and largely similar in nature. Whenever we hear of a horticultural society or other organization undertaking work that is out of the ordinary we endeavor to describe the departure for the benefit of our readers generally. In the same way we endeavor to give full reports of all meetings of provincial organizations, such as the provincial fruit and vegetable growers' associations in different provinces, and the Ontario Horticultural Association, which are of more than local interest.

Each month columns of interesting reading material are crowded out of THE CANADIAN HORTICULTURIST through lack of space. This makes it necessary that we shall endeavor to publish each month only such items as are likely to be of the greatest interest to the greatest number.

NORTHERN GROWN NURSERY STOCK

All Standard Varieties and Leading Novelties in Fruits, Ornamental Trees, Shrubs, Vines, Roses and Herbaceous Perennials—well-rooted, free from scale and disease, true to name—grown in our Nurseries. Stock grown in this latitude is exceptionally hardy, and can be relied upon to give the Best Satisfaction for All Purposes, and under All Conditions.



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TORONTO

British Columbia's Big Apple Show

Arrangements for the big apple show that is to be held in Vancouver, B.C., during the week beginning October 31, are progressing rapidly. The management announces that \$20,000 will be offered in cash prizes and \$5,000 in special prizes, such as orchard land, nursery stock and so forth. The show will be held in the Vancouver Exposition buildings. Efforts are being made to make it the greatest show of the kind that has ever been held.

The manager of the show, Mr. Maxwell Smith, has been touring the fruit districts canvassing for exhibits. Transportation facilities have been arranged so that car load exhibits may be shipped direct to the exposition grounds, and there transferred by truck into the buildings preparatory to being placed on display.

FEATURES OF THE PRIZE LIST

In the carload exhibits alone \$10,425 is being offered in prizes, while those offered for the box exhibits will total more than \$5000. The plate displays will receive a little more than \$1,000.

To carry out the national scope of the exposition, it has been decided to eliminate competition within districts and to offer prizes for districts exhibiting against one another. A province, state, or a specified locality within a province or state may compete for what is known as the district prize, which will amount to nearly \$1,000 in cash.

Prizes will also be awarded for limited displays artistically arranged: for best pack in boxes of three and one-half, four, four and one-half and five tiers; and for home made by-products and factory-made by-products of the apple. Special sweepstakes prizes will be awarded, amounting to \$450 cash and covering the entire exhibition.

To demonstrate the size to which apples can be grown regardless of commercial value, 300 will be offered for the best collection of large apples arranged on a space six by six feet; \$185 in prizes for the largest and most perfect apple, and a special prize for the greatest freak apple exhibit.

\$8,500 FOR CAR LOAD EXHIBITS

In the contest for the best car load exhibit comprising 600 boxes or 200 barrels, the following prizes are offered:

	1st.	2nd.	3rd.
No. 1—Northern Spy	\$500	\$250	\$100
No. 2—Gravenstein	500	250	100
No. 3—Fameuse	500	250	100
No. 4—Spitzenburg	500	250	100
No. 5—Yellow Newtown . . .	500	250	100
No. 6—Grimes Golden	500	250	100
No. 7—King of Tompkins . . .	500	250	100
No. 8—McIntosh	500	250	100
No. 9—Jonathan	500	250	100
No. 10—Mixed carloads			

(varieties for sweepstakes, mixed carload to govern) 500 250 100

DISTRICT DISPLAYS.

The rules governing the displays by districts are as follows:

Any number of varieties may be entered; any size, color or colors, any shape may be packed in boxes, barrels, baskets, or jars, or shown on plates; arranged in any style desired; decorated as wished. The only restriction will be a space limit for each exhibit of 10 by 20 feet.

The displays will be scored as follows: Best artistic arrangement of exhibit 20 points, quality 15, color 15, condition 15, pack 15, size 10, uniformity 10.

First prize, \$500 cash; second prize, \$250 cash; third prize, \$100 gold medal; fourth

prize, \$50 and solid silver gold-embossed medal; fifth prize, \$25, and solid silver medal.

LIMITED DISPLAYS.

To encourage artistic arrangement in the displays for exhibition purposes, \$375 cash and \$85 in solid silver and bronze medals is offered for the best two boxes, two barrels, two baskets, two jars and two plates as follows: First prize, \$250 cash; second prize, \$125 cash; third prize, \$50 solid silver gold-embossed medal; fourth prize, \$25 solid silver medal; fifth prize, \$10 bronze medal.

The contest is open to individuals, districts, counties, states and provinces. Each exhibit must contain two boxes, two barrels, two baskets, two plates and two jars, but no box, barrel, basket, plate or jar may contain more than one variety. The exhibitor is allowed his own choice of varieties, and may decorate the exhibit as he desires in a space six by 12 feet on an incline. This makes possible 10 varieties which may be exhibited in this contest. The exhibitor may select one variety or the possible 10, but in no case shall he have more than 10 separate packages of apples. A box in this contest may contain not less than 40 pounds or more than 60 pounds. A barrel must contain not less than two and a half bushels and not more than three bushels. A basket must contain not less than 25 pounds and not more than 32 pounds. A plate must contain five apples. A jar may be made of any material and any size not to exceed 60 gallons. Either preserved or natural fruit may be exhibited in the jars.

PACK AWARDS.

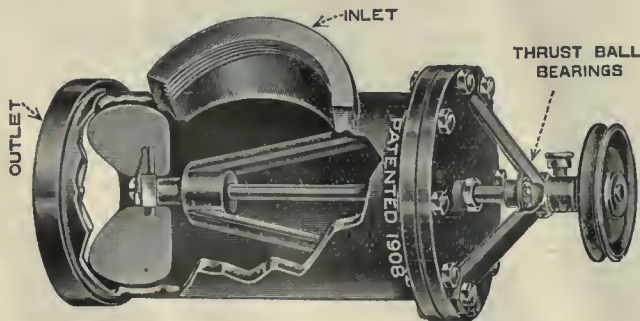
To encourage the best methods of packing, the following prizes are offered for box packed apples:

N. 1—Best three and one-half tier pack

"Ideal" Hot Water Circulator Saves 25% to 40% of Fuel

Returns the water hot to the boiler, thus ensuring an even temperature in every part of the system. It is simple in construction, easy to operate, and can readily be attached to any hot water heating system.

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five boxes: First prize, \$75; second prize, \$50; third prize, \$15; fourth prize, bronze medal.

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Manager—Maxwell Smith, formerly Dominion Government Fruit Inspector of British Columbia.

Secretary—Mr. L. G. Monroe, late Secretary of the Spokane Chamber of Commerce, of Spokane, Wash., and Secretary of the Washington State Horticulture Association.

Further particulars may be obtained from the secretary, whose address is: Room 7, Winch Building, Vancouver, B.C.

I look anxiously forward each month for your valuable paper, The Canadian Horticulturist.—Mrs. J. B. Potts, St. Thomas, Ont.

The Late H. S. Peart

The Horticultural interests of Ontario and of Canada have suffered a loss through the death, which took place recently, of H. S. Peart, B.S.A., the Director of the Horticultural Experiment Station at Jordan Harbor, Ont. The late Mr. Peart was born at Nelson, Ont., near Burlington, and was a son of Edwin Peart, a well-known general fruit grower of that locality. Mr. A. W. Peart, Provincial Fruit Experimenter for the Burlington District and a Director of the Horticultural Publishing Co., Ltd., is a cousin. Mr. H. S. Peart lived on the fruit farm of his father until 1899 when he undertook a course at the O.A.C., Guelph, specializing in horticulture and graduating in 1903. Immediately after graduation he was appointed assistant in horticulture at the same institution which position he filled with credit until his appointment as Director of the Jordan Harbor Station, on June 1, 1907.

When Mr. Peart assumed charge of the station the land had been only recently acquired for such a purpose. For the most part it was in very rough condition. In the brief interval that has elapsed the station grounds have been transformed. Handsome buildings have been erected and the planting of different varieties of fruits has been conducted extensively with the result that the Station has already reached a position where fruit growers are beginning to better realize and appreciate its value. The work already accomplished under Mr. Peart's direction, has been important, although many of his plans cannot be perfected for years to come. Additional sadness is lent to the circumstances by the realization that the Grim Reaper in this instance

has cut off this useful and promising young life just as it was entering upon an era bright with possibilities for still greater valuable public service. The family of the late Mr. Peart has the sympathy of an unusually wide circle of friends.

The Canadian Pacific Railway has a force of men at work on two large tracts of land in the East Kootenay District, one at Yahk and the other at Curzon Junction. The land is being cleared and planted in fruit trees. It is the intention of the company to dispose of this land in 10 and 20-acre lots to bona fide settlers.

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NOTES FROM THE PROVINCES

Annapolis Valley East N. S.,

Ennice Watts, A. R. H. S.

So far, the season has been one of perpetual showers and sunshine—ideal growing weather. Orchards look a nice healthy green but owing to the late frosts, the crop seems to be chiefly leaves in low lying orchards. The cranberry growers are not expecting a big crop. Strawberries and other small fruits have turned out well. The blueberries are going to be large and plentiful, which will in a measure, make up for the shortage in other fruits.

Corn, cucumbers and other vegetables are growing rapidly, especially where the hoe and cultivator are kept moving. Cutworms seem to have been extra troublesome but their season will soon be over.

In spite of the fact that the frost cut down many tomato plants, there are still a quantity which will supply local markets. Nova Scotians have yet to learn the art of getting these vegetables to ripen as soon as they would. The mistake made is, that the young plants are allowed to remain too long in the flats; if they were transplanted into individual pots or strawberry baskets, one in each, they would develop into sturdy plants, which could be turned out at the time of planting without breaking the ball of earth, which gives a set-back. True, the cost of raising tomatoes in this way is more, but the profit on early ones makes it well worth the trouble.

Summer pruning, that is, pinching back

the side shoots, is now the chief work in the nursery. The young trees are making a splendid growth.

Quebec

Auguste Dupuis, Director Fruit Experiment Station
Village des Aulnaies

Tent caterpillars have been very numerous. The aphids and bud moths have made their appearance. The black knot on cherry and plum trees is increasing. Clean trees have caught the disease through infested trees in neglected orchards in their neighborhood.

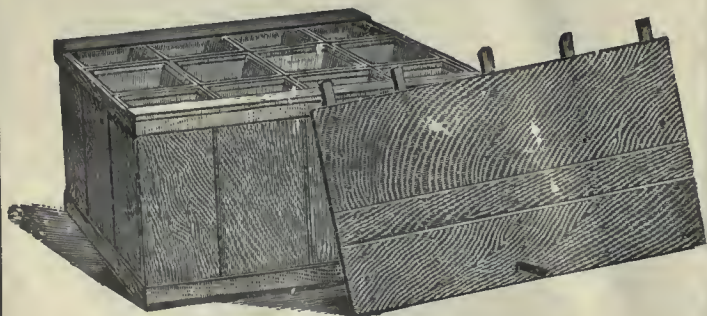
The orchard area is increasing. Better varieties are planted, the soil is prepared and cultivated with more care; planters follow the advice of the Horticultural Societies and of the Journal of Agriculture and Horticulture. THE CANADIAN HORTICULTURIST is becoming more and more popular, it is so instructive, practical and interesting.

Honorable Jos. Ed. Caron, Minister of Agriculture, a practical farmer, evinces the greatest solicitude for the development of the fruit industry. Several new experimental fruit stations have been created by his order where most needed.

Mr. Albert Verreault has greatly enlarged his nursery at Village des Aulnaies. Several cars of fruit and ornamental trees sold by him this spring show that proprietors of farms and villas are taking more interest

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WINNIPEG

than ever in the fruit industry and home adornment.

The cherry crop, which was very promising in June will be a failure. The cherries are abundant, but unsaleable as they are full of worms.

The plum crop in L'Islet Co. is the best we ever had and the fruit neat and large for the season. Several car loads will be shipped from this county.

Montreal

E. H. Wartman, Dominion Fruit Inspector

Montreal as a consumer of fruits and distributor far excels all other cities in Canada. July 14, 14 cars of bananas arrived. On two auction days of this week 20 cars of various fruits were sold. Before our own strawberries arrived from Ontario, 79 cars from the United States were handled by our auction commission men.

Buyers got a surprise July 14 by seeing a car of Colorado boxed apples nicely displayed on the floor of the auction company. They were Ben Davis and Wine Sap and wonderfully well preserved. The fruit was not wrapped, there being only a sheet of oiled paper on four sides of the box. These apples had been picked ten months.

Some of the less posted buyers thought that they were this year's apples—as cars have been arriving from Tennessee and New Jersey. Three dollars per bushel box was asked for them by private sale. New apples from California sold at auction at \$3.05 a bushel box. The trade is paying good prices for well graded and preserved fruits. Ungraded, unsightly packages generally sell for but little over transportation charges.

Renew your subscription now.

Niagara District, Ont.

The death on July 18 of Mr. H. S. Peart, the director of the experimental farm at Jordan Harbor, has been the cause of deep regret by the fruit growers of the Niagara District in whose interests he had been working indefatigably and capably for the past few years. Mr. Peart was looked up to, respected and beloved by the fruit growers. His administration of the farm has been eminently successful. In losing at an early age a young man who has already accomplished so much, the Province of Ontario has sustained a distinct loss.

The rains followed by cooler weather have helped the raspberries wonderfully, indeed were the saving of the crop; they also helped gooseberries, black and red currants and blackberries. All these fruits are a good crop and bringing good prices. Cherries are in demand and by no means plentiful.

The following was the range of prices on the Hamilton market on July 19th: Gooseberries per 11 quart basket 75c to \$1.00; red raspberries per crate, \$2.00; black raspberries, \$2.75 to \$3.00; red currants, \$1 to \$1.40; black currants, \$1.00 to \$1.25 per 11 quart basket. English cherries, \$1.25 to \$1.50 per basket; sour cherries, 85 cents to \$1.00.

On July 20th the buyers at Winona were paying as follows: red raspberries, crate, \$1.90 to \$2.05; sour cherries, \$1.00; black cherries, \$1.20; gooseberries, 75c a basket; red currants a crate \$1.00; black currants, \$1.25 a basket.

On July 14th tomatoes made their first appearance on the Hamilton market and sold at \$1.75, on the 19th they were still selling at \$1.50 to \$1.75.

The outlook for this crop in the Niagara district is not very good, especially in the St. Catharines district, the vines have not

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THE PRINCIPLES OF FRUIT GROWING. By L. H. Bailey.
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A complete treatise on the practice of fruit growing, comprising an inventory of fruits and a full discussion of the tillage, planting and fertilizing of fruit lands, and the protection of fruit plants from disease, frosts and other dangers.

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It treats of the philosophic reason for pruning fruit-bearing trees and plants (especially grapes) and of the practical results obtained.

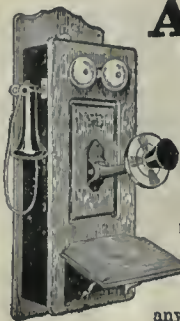
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set their fruit properly owing probably to the cold wet weather followed by drought. Some growers complain of a sort of blight affecting the vines at the time of setting.

Peaches are looking very well and will be a good deal better crop than was anticipated earlier in the season. Generally speaking, however, Elbertas are somewhat light.

Plums are going to be a fair crop of the chief varieties. Lombards are not as heavy as usual.

Pears in all varieties are good except Duchesses which are inclined to be light: apples, early varieties, such as Astrachan and Duchesses are good. Fall and Winter varieties a moderate crop. The Codling Moth, although somewhat late in making his appearance, has made up for lost time, and is very bad in orchards not carefully sprayed.

The aphid is apparently not going to be much trouble this year. There are plenty to be found, but they seem nearly all to be dead, whether killed by the lady bird beetles, which are very plentiful this year, or by climatic conditions, is a question.

Grapes are looking well: but Concord and Niagaras on old vineyards are not nearly as heavy as for the last two years. Young vineyards are well loaded. Generally speaking, red grapes are a good crop. There are no complaints of rot as yet, and spraying is being carefully done.

Yellows, as far as we can yet tell does not seem to be spreading much at the Western end of the Peninsula. The same, however, can hardly be said of "Little Peach," which is bad in some orchards. More will be known by next month regarding these two diseases, as the inspectors are just starting upon their rounds.

A number of members of the Provincial Cabinet at the invitation of the Minister of Agriculture, the Hon. James Duff, paid a visit to the experimental farm at Jordan Harbor on July 14th. Owing to the very severe illness of Mr. Peart, they were received by Mr. Lopdale, the specialist in plant breeding at the farm. On the way they paid a visit to Mr. E. D. Smith's fruit farm, nursery, jam factory, etc., at Winona. The party were much pleased over the way things were looking on the farm and with the great improvements that had been made there during the last two and a half years under the able superintendence of the director, the late Mr. Peart.—Weary Worm, Winona.

Islands District, B. C.

The fruit crop as a whole is above the average. Apples heavy, so heavy in fact, that where not thinned, they will be undersized.

Cherries are a rather light crop, especially the sweet varieties.

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Morellos promise well, though if the dry spell lasts, they may be undersized.

Strawberries have been a heavy crop of extra quality, and other small fruits are bearing well, though currants are wormy, and if the dry spell lasts the last of the raspberries will be small. There has been an average crop of hay with us, though light in places. All other crops look well where good farming is practised.—W. J. L. Hamilton.

British Columbia Notes

An idea of the rapid growth taking place in the development of the fruit industry in British Columbia is furnished by the report of Thomas Cunningham, Provincial Inspector of fruit pests. This report, as presented to the government, shows that during the first fourth months of this year there were 2,718,056 fruit trees and plants inspected at the provincial inspecting station at Vancouver, as follows: January, 592,000; February, 103,184; March, 767,152; April, 1,255,720. This exceeds the number inspected during the same period of 1909 by 1,422,281, or by 173 per cent. It is estimated by Mr. Cunningham that during the remaining eight months of the year the number of trees and plants that will arrive will bring the total up to about 4,000,000.

In one of his weekly reports to the Department of Agriculture, Mr. J. C. Metcalf, who is visiting the markets in the three prairie provinces on behalf of the fruit growers of British Columbia, states that at Saskatoon there is a better feeling on the part of the jobbing houses and retailers this year toward buying and handling British Columbia fruit. Mr. Metcalf warns our growers, that while all our fruit might be marketed in the provinces of Alberta and Saskatchewan, it will be advisable to market a percentage of our output in Manitoba, not only for the purpose of selling it, but to advertise it as well, thus removing the impression that exists in the minds of some of the dealers, that we are not growing any appreciable quantity of fruit as yet. Our growers are warned that they will have to put up a good product this season for the prairie markets as prices there will be ruled to a great extent by Oregon and Washington competitive prices, which must be met.

The Mission Board of Trade has passed the following resolution: "Whereas the jobbers and wholesale men of the North-west are petitioning the Dominion government through their various boards of trade to further reduce the duty on American fruit coming into Canada, this board of trade calls the attention of the government to the great injustice and hardship this would be to the fruit growing industry, and petitions that in lieu of any decrease being made in the duty the same should be increased."

The Central Okanagan Land and Development Co., near Kelowna, who installed the system of irrigation now in force near Rutland, have purchased about 7,000 acres almost due north of Kelowna and reaching to within one and a half miles of the city. This purchase includes some of the best fruit lands of this district. A system of irrigation is being installed. Water is being conveyed across the valley by a 32-inch steel pipe main to concrete ditches and concrete lateral pipes which convey the water to the sub-division lots.

Near Brilliant, B.C., the Deukhobors, who two years ago bought 2,700 acres of land, have this spring started a colony. Already they have 50,000 fruit trees planted. The work they have done may be judged from the fact that all the land had to be cleared and it was heavy clearing at that. They are taking out every root and are ploughing deep. They intend to put



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Kendall's Spavin Cure

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Port Kalla, B.C., June 14th 1909
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\$1. a bottle—6 for \$5. Excellent for household use. Sold by all dealers. Ask for free book "A Treatise On The Horse" or write us for copy. 55

DR. B. J. KENDALL CO. Enosburg Falls, Vt.

the 2,700 acres all in fruit. This will be the headquarters for the society. There are about 1,000 Doukhobers here now, and on the first of August a train is expected from Saskatchewan with about 700 more. Ultimately they expect to have about 7,000 settlers.

The Belgo-Canadian Syndicate is opening up a stretch of rolling and bench land comprising about 6,000 acres, north of Mission Creek in the Kelewna district.

Provincial Inspector of Fruit Pests, Thos. Cunningham, does not believe that there is any danger of fruit production in this province being over done. In this connection he points out that during 1909 there was imported into the city of Vancouver 1,013,163 boxes of apples, pears, peaches, apricots, quinces and plums, every pound of which could have been grown in the province. Mr. Cunningham expects in time to see high class apples produced in sections 500 miles north of Vancouver.

Fruit Prospects in the States

The statement of crop conditions in the United States issued July 15th by the Department of Agriculture of Washington, gives the following summary of fruit crop conditions on July 1 with those for the same date in 1909, 1908, and the average for the ten years previous, as follows:

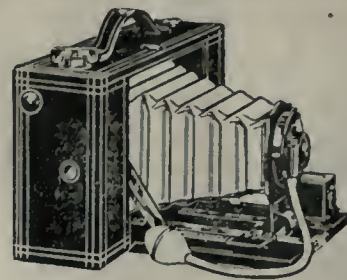
Crop	1910	1909	1908	average	June 1 1910
Apples . . .	49.6	54.6	57.6	61.9	53.0
Peaches . . .	62.1	50.0	69.7	61.4	62.0
Pears . . .	61.0	57.5	69.7	...	63.2
Tomatoes . .	96.1	91.6	89.4	88.0	...
Grapes . . .	80.2	90.2	87.9	88.5	...
Watermelons	78.5	80.6	81.4	81.4	77.4
Blackberries	77.0	88.8	90.5	90.0	80.0

STATE AVERAGES

The following is a summary of the conditions in some of the leading states on July 1, 1910, with comparisons for 1909 and for the ten year averages:

State Territory, or Division.	Apples.			Peaches.			Pears.			Grapes.		
	1910	1909	av. a.	1910	1909	av. a.	1910	1909	av. a.	1910	1909	av. a.
	%	%	%	%	%	%	%	%	%	%	%	%
Me.	83	77	80	..	..	..	85	88	86	87	87	89
N. H.	80	80	77	69	100	69	86	91	85	93	84	84
Vt.	85	75	80	..	..	..	90	80	80	85	85	83
Mass.	77	75	78	65	80	65	83	80	82	89	85	85
R. I.	56	79	83	67	70	66	78	80	65	88	88	88
Conn.	64	65	80	82	90	68	91	87	90	79	80	80
N. Y.	60	75	72	73	80	64	67	75	80	93	85	85
N. J.	67	60	65	82	60	70	75	53	83	88	86	86
Pa.	58	63	66	69	69	60	73	60	69	88	81	..
Del.	80	50	66	89	15	60	79	27	78	88	85	..
Md.	72	58	65	85	35	62	80	40	84	87	85	..
Va.	72	40	56	86	20	54	73	21	85	80	87	..
W. Va.	55	44	50	61	45	51	55	40	58	82	81	..
N. C.	78	55	64	85	55	62	77	45	85	85	87	..
S. C.	81	50	60	85	55	67	82	50	87	81	85	..
Ga.	68	50	55	88	50	69	73	45	81	81	87	..
Fla. . . . .	..	..	..	81	60	77	82	52	..	..	..	..
Ohio.	32	33	53	40	40	47	39	44	50	85	84	..
Ind.	39	38	52	38	67	51	37	45	50	86	85	..
Ill.	8	35	55	6	54	49	6	49	20	86	84	..
Mich.	45	70	70	44	70	63	47	71	55	87	83	..
Wis.	17	75	74	..	..	..	36	85	36	87	82	..
Minn.	16	85	78	..	..	..	..	59	90	85	85	..
Iowa	6	73	63	0	10	49	2	50	35	86	80	..
Mo.	32	50	51	25	36	47	20	40	47	86	77	..
N. Dak. . . . .	..	..	..	..	..	..	..	..	..	..	..	..
S. Dak.	15	84	80	..	..	..	..	..	..	91	84	..
Nebr.	26	73	65	10	35	52	14	42	56	83	81	..
Kans.	64	30	53	59	15	50	55	20	76	75	75	..
Ky.	49	55	54	36	60	55	40	53	60	84	86	..
Tenn.	51	53	53	55	58	56	45	45	70	71	80	..
Ala.	55	55	64	63	58	68	52	55	70	74	83	..
Miss.	45	50	65	72	56	66	49	50	76	68	80	..
La.	50	50	67	72	48	66	60	55	70	83	83	..
Tex.	70	45	70	75	31	64	74	45	82	67	78	..
Okla.	63	50	71	68	35	70	58	30	72	66	82	..
Ark.	47	47	63	41	49	68	34	40	57	70	81	..
Mont.	60	85	89	68
Wyo.	85	70
Colo.	55	80	76	27	55	66	39	65	50	90	83	..

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date of deposit.**The New Assistant at Ottawa**Mr. T. G. Bunting, B.S.A., who has re-
cently been appointed to the position of
Assistant Horticulturist at the Central Ex-perimental Farm, at
Ottawa, in connec-
tion with the work
so ably carried on by
Mr. W. T. Macoun,
is the eldest son of
Mr. Wm. H. Bunt-
ing, of St. Cathar-
ines, Ont., one of the
most successful and
best known fruit
growers in Canada.
Mr. T. G. Bunting
is a graduate from
the Ontario Agricul-
tural College at
1907. In addition to his College course, Mr.
Bunting has had considerable experience in
practical horticulture on the farm of his
father, at St. Catharines. He has also
travelled extensively through the fruit sec-
tions of the Pacific coast and has spent
the past year in connection with the hor-
ticultural department of New Hampshire
State Experimental Station and College at
Durham, N.H. In his present position, Mr.
Bunting will have considerable scope and
opportunity to further the interests of hor-
ticulture in Canada.**Shipping Strawberries West**The St. Catharines Cold Storage and
Forwarding Co., on June 24 shipped a
Grand Trunk Pacific refrigerator car full of
strawberries, the product of fourteen grow-
ers, to Winnipeg. The car was expected to
arrive at noon on the 29th, but did not ar-
rive until the afternoon of the 30th. The ber-
ries were all unloaded the same afternoon.
Although they had been six days in transit
they were found to be in excellent condition.
They were sold to the restaurants at \$3.50
a crate. Had it not been that the following
day was a holiday they might have been
sold for \$4 a crate.Mr. Robert Thompson, the president of
the St. Catharines Cold Storage Co., who
has done much to develop the trade in
tender fruit between Ontario and the west,
and who had charge of this shipment, be-
lieves that with the experience gained as
regards the proper stage at which to pick
the berries and the way to load the cars,
that next year ten or twelve cars will be
forwarded.About the middle of July a car of red
currants, red cherries and gooseberries and
some vegetables were forwarded from St.
Catharines to the same market. Mr. Thomp-
son contends that if Ontario fruit is prop-
erly gathered, packed in the right packages,
chilled, and loaded in ventilated cars the
western market will absorb all the surplus
tender fruit that the eastern markets cannot
take.**Canadian Tender Fruit in
England**After a trip to England, in the course
of which he made careful inquiries in regard
to the conditions of the fruit markets there,
Mr. J. Lockie Wilson, Superintendent of
Horticultural Societies for Ontario and Sec-
retary of the Ontario Vegetable Growers
Association has returned with the belief that
it is possible to greatly develop Canadian
trade with Great Britain in tender fruits.
"I believe," said Mr. Wilson, "that the
shipment of Ontario peaches to the old
country can be made a profitable trade.
Peaches have sold in Covent Garden Market

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15c; 6 for 75c.Grand Duke, crimson-scarlet, very large,
each 25c; 6 for \$1.25.Menelik, light satiny copper shade, each 25c;
6 for \$1.25.Princess Victoria Louise, salmon-rose shad-
ing to blush rose, a gem, each 30c; 6 for \$1.50.Psyche, rose blush shading to white, each
25c; 6 for \$1.25.In August and September these plants are
dormant, and we pack them to go anywhere
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at as high as 9d to 18d each. The Englishman wants fine stuff and is ready to buy fine peaches at high prices. It would not do for Canadian peach growers to flood the market with small, inferior fruit. By making a specialty of the trade it can be greatly developed.

"The same is true of tomatoes. I saw tomatoes selling in the open market at three cents a lb. Most of these were grown and shipped from the Canary Islands although thousands of pounds are grown in England under glass at great expense. The tomatoes we grow in Ontario are well suited to the English market. The tomatoes our growers sell at twenty-five cents a bus., would bring four to twelve cents a lb., were they sold in England in good condition.

The Canary Island tomatoes are packed in peat and saw-dust. It takes them seven days to reach London. They keep there without cold storage from one to two weeks. They are packed in twelve pound boxes. I believe that if we packed our tomatoes in peat and saw-dust we could land them on the British markets in good condition."

The Norway, Ontario, Horticultural Society will hold its third annual show, August 19 and 20th. A feature of the show will be asters grown from seed by children of the members. The seed was distributed by the society. Prizes will be offered for canned fruits, jams, jellies, bread and cake.

Peach Shipments to Great Britain

Hamilton Fleming, Grimsby, Ont.

For the last three seasons I have experimented in shipping peaches to Great Britain. I have come to the conclusion that at present there is no advantage in doing so.

The class of peaches grown here, that it is possible to ship, do not compare in flavor or appearance with the British grown or with the best class of South African peaches. Those we now ship only reach the second class market and the small retail shops, and at the prices they bring, judging from my own experience, I am financially ahead when I place my peaches on the Canadian market.

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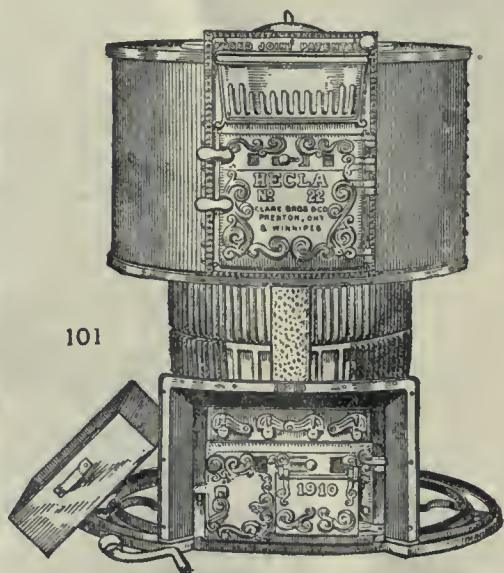
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THE CANADIAN HORTICULTURIST

AUGUST, 1910
Vol. 33 No. 8

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The Canadian Horticulturist

Contents for August

Scene in the Niagara Fruit District, Ont. Cover

Fruits and Fruit Growing

Fertilizers for the Orchard and Market Garden	<i>A. E. Slater</i>	183
Cover Crops in the Orchard	<i>Grant S. Peart</i>	184
The San Jose Scale and the Fruit Pests Act		185
Boxes vs. Barrels in the East	<i>Dr. S. W. Fletcher</i>	186
Trimming Blackberries		186

Flower Garden and Lawn

An Amateur Flower Grower's Garden in August	<i>W. Hunt</i>	187
Wild Flowers for the Home Garden		187
Prepare Your Paeony Beds Now	<i>John Cavers</i>	188
Insects on Rose Bushes		189
Coal Ashes as a Fertilizer		189
The Perennial Border	<i>C. Watters</i>	189
Lawn and Garden Hints		189

Vegetables and Market Gardening

More About Mushrooms	<i>J. McP. Ross</i>	190
Hothouse Vegetables	<i>A. H. Walker</i>	191

General

Editorials		192
Publisher's Desk		193
British Columbia's Big Apple Show		194
Death of H. S. Peart		195
Notes from The Provinces		196
Fruit Prospects in the States		200
The New Assistant at Ottawa		201
Shipping Strawberries West		201
Peach Shipments to Great Britain		202

INDEX TO ADVERTISEMENTS.

Apple Press		198
Bank		201
Books		197, 200
Boxes, Baskets and Barrels	193, 195, 196,	199
Building Material		201
Cameras		200
Classified Advertisements		vi
Commission Merchants	191, 196, 197, 198, 199,	201
Exhibitions	ii, 198,	201
Fencing		vi
Fertilizers	iii, 179	
Flower Pots		vi
Fruit Lands		vi
Furnaces		202
Greenhouse Material and Supplies	iii, iv,	191
Implements and Tools		196
Insecticides and Fungicides	201, vi	
Ladders		195
Mail Order Houses		v
Nursery Stock	iv, 193	
Pianos	199, 200	
Roofing Material		197
Rubber Stamps and Stencils		201
Safes		198
Schools and Colleges	ii, 200	
Seeds and Bulbs and Plants	200, 201	
Steamship Companies		vii
Telephones	198, viii	
Veterinary Remedies		200
Weedicide		199

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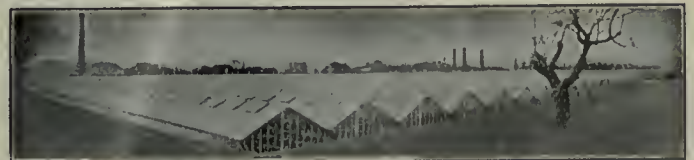
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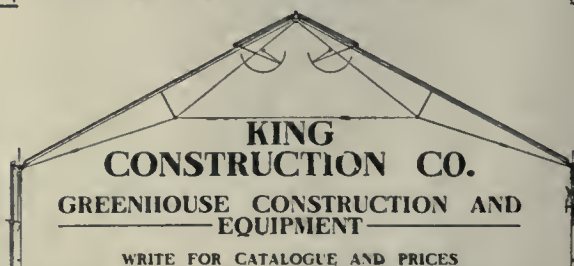
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For the present, however, I can only repeat, that judging from my small, but practical experience, and from conversations I have had with some of the most experienced growers in this district, I consider that there

is no financial advantage in shipping our present varieties of tender fruit to Great Britain.

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Ottawa Vegetable Growers

The monthly meeting of the Ottawa Vegetable Growers' Association for July took the form of a picnic at Woodroffe, the home of Mr. W. J. Kerr, the secretary. A representative of THE CANADIAN HORTICULTURIST was present and reported an enjoyable afternoon. After luncheon, which was served on the lawn, short addresses were given by Messrs. Alex. McNeill, W. T. Macoun, R.

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B. Whyte, W. J. Kerr, L. A. Smith and Mr. Nicholson.

Mr. Macoun drew attention to the fact that there was a good market in Ottawa for a good class of vegetables, and strongly advised the members of the association to cater to this market by producing the best possible quality of vegetables, making their name known as producers of a first-class article. He advised the individual growers to make a specialty of one particular variety of vegetables, as this would help them greatly in working up a good class of customers. Vegetable growers in the vicinity of all the large cities would do well to follow such advice.

Later, Mr. Kerr showed his visitors over a large patch of Herbert Raspberries, of which he grows a good many. Although they were planted out late last summer, and were being cultivated more with a view to producing new plants than fruit, many of the bushes were so heavily laden with fruit as to be bent almost to the ground. The Herbert Raspberry was originated in Ottawa some 22 years ago by Mr. R. B. Whyte and has proven itself one of the most if not the most valuable raspberry for all purposes that has ever been originated. It is exceedingly hardy, a heavy bearer, and the fruit is of the very best quality as was shown by comparison with other varieties also grown by Mr. Kerr. Mr. W. T. Macoun, Dominion Horticulturist, states that for the section surrounding Ottawa, the Herbert Raspberry is the best berry he knows.

A short inspection was then made of Mr. Kerr's nursery, where he has a large variety of small fruits and ornamental stock growing, after which Mr. Macoun conducted the party to the Central Experimental Farm and showed them what was there being done in the way of introducing and testing new varieties of fruits, tests with different methods of cultivation and fertilization and numerous other experiments which are being carried on and the results of which are made known to the public through the publishing of bulletins which are issued from time to time. After inspection of the lawns, flower beds and shrubbery borders, propagating beds and shrubbery of the Experimental Farm, the party dispersed, having spent an enjoyable and profitable afternoon.

Conventions and Meetings

The annual convention of the Canadian Horticultural Association will be held at St. Catharines, Ont., August 10, 11 and 12th. The members will consider the advisability of approaching the government to have a reduction made in the tariff on plants and flowers.

The third annual convention of the Greenhouse Vegetable Growers' and Market Gardeners' Association of America, will be held at Grand Rapids, Michigan, September 27, 28 and 29th. The Secretary is S. W. Severance, 208 Walker Bldg., Louisville, Ky.

The annual exhibition of the Montreal Horticultural Society and Fruit Growers' Association of the province of Quebec, will be held in Montreal, September 7 and 8.

No entries will be received later than August 31st. The Secretary is A. J. Bewles, P.O. Box 778, Montreal, Que. Prizes are offered for plants, cut bloom, bouquets, plate fruit, baskets of fruit, outdoor and hothouse grapes, and for vegetables.

COMING EVENTS

Under this heading, notices of forthcoming exhibitions and meetings of horticultural importance will be published. Send the information as long in advance as possible.

Regina, Sask., Provincial.....Aug. 2-5.
Canadian Horticultural Association Convention, St. Catharines, Ont. . . . Aug. 10-12.
VancouverAug. 15-20.
Toronto, Canadian National.....
.....Aug. 27-Sept. 12.
Sherbrooke, Que., Great Eastern.....
.....Aug. 27-Sept. 3.
Sherbrooke, Quebec Pomological Society (Summer Meeting) Aug. 30-Sept. 1.
Montreal Horticultural Exhibition Sept 7-8.
St. John, N. B., Dominion Exhibition....
.....Sept. 5-15.
Ottawa, Central Canada.....Sept. 9-17
London, Ont., Western Fair.....Sept. 9-17.
Charlottetown, P. E. I. Provincial.....
.....Sept. 20-24.

SEE EXHIBIT OF PATENTS and Patent Models at the Toronto Exhibition. There are some good things for you—ideas at least, worth a whole lot.—The Commercial Patent Exchange, C. B. Reece, Manager, Jordan, Ont.

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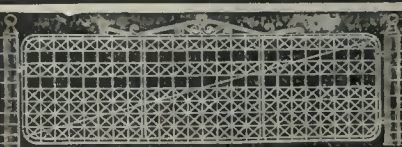
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The Canadian Horticulturist

Vol. XXXIII

SEPTEMBER, 1910

No. 9

Critical Position of the Apple Industry in Ontario*

Prof. J. W. Crow, O.A.C., Guelph, Ont.

SOME fifteen or more years ago the apple industry of Ontario was at its best. Since that time, for various causes, there has been a general decline of interest in apple orcharding, a general increase in the percentage of defective apples, and a general falling off in the quantity of good apples finding their way to market. The industry is coming to life in a few localities, but over Ontario generally orcharding is still on the decline.

The causes which have led in recent years to the decline of the industry are, first, the increase of fungous and insect pests. It is said that until twenty years ago or even later, apple scab and codling worm were not found abundantly in any section of Ontario. Since that time they have spread and multiplied in every section until now these two pests are the most serious with which the apple grower has to contend.

The second great reason is a climatic one, namely, winter injury. Within the last six years Ontario has experienced unusually trying winters. That of 1903-04 was particularly destructive to fruit plantations. Since that date trees have been dying by degrees in all sections of the province, especially the northern ones. Previous to that time there had been little opportunity of determining the hardiness of various varieties and, as a consequence, many varieties which ultimately proved tender were planted in almost all localities.

The third great reason is that in the past we have suffered from an over-supply of buyers. It is not altogether the fact that there have been too many buyers, but rather the fact that there have been too many of the wrong kind.

The trade has had many reputable representatives for many years, but a large proportion of the crop has from year to year passed through the hands of men without capital and, in too many instances, without character. The country has been over-run with men whose business policy consisted very largely of sharp practice. Under the influence of lower prices brought about by such discouraging conditions, farmers have lost interest in apple growing, and we are to-day in a position from which no one

can do so much to deliver us as the honest, reputable apple dealer.

Buyers state that the codling moth has been the worst enemy their business has encountered in the last score of years. The growers state emphatically that the worst enemy they have met with is not the codling moth but the disreputable dealer—the man who operates without capital and who by means of crooked practices endeavors to get more than he pays for or to deliver less than he has sold.

BUYERS BECOMING GROWERS

It is significant of the condition of the trade in Ontario that many buyers, finding they are no longer able to secure good apples are going themselves into the business of apple growing. It is also to be noticed that a number of buyers have transferred the scene of their

that will encourage the production of good apples. Good apples are always worth the price, but if the production of a high grade article is to be assisted, growers must receive the encouragement of profitable prices.

THE NORFOLK DISTRICT

The locality in which the most rapid development has taken place in recent years is the county of Norfolk. It is probably correct to say that growers in this district are in advance of those in other districts with respect to their general methods of spraying, pruning, cultivating, grading and packing. The credit for this condition of affairs belongs very largely to Mr. James E. Johnson, of Simcoe, Ont.

Mr. Johnson, as manager of the Norfolk County Fruit Growers' Association, has established a reputation for grading and packing unexcelled in the province. The association handles the largest proportion of the apples grown in the locality and last year packed some 19,000 barrels. The orchards which last year produced this amount of fruit have not, as one might expect, just come into bearing, but have, as a matter of fact, been on the spot for twenty-five years or longer. Most of the orchards in that locality vary in age from thirty to fifty years.

Previous to 1900 no apples worth mentioning were being exported out of the county. Since, however, it has been demonstrated that old orchards, if properly handled, are capable of yielding good crops and paying good returns, considerable interest has been aroused and new planting is going forward at a rapid rate. The bearing orchards consist largely of Baldwin, Spy and Greening and average not more than three acres in extent. The newer plantings vary in size from five to seventy-five acres and consist principally of the same varieties, although a large proportion of earlier varieties, including Alexander, Wealthy, Snow, McIntosh, Blenheim and King are being used.

At present almost all the orchards in the county are being more or less carefully looked after. Cultivation is the rule, as is also thorough spraying. Situated as they are, in the southerly portion of Ontario, there has been very little experienced from winter injury of any

All Should Read It

I have been much interested in watching the steady growth in practical usefulness of THE CANADIAN HORTICULTURIST. It is worth many times its subscription price to anyone who cultivates even only a small city lot. To the professional as well as to the amateur horticulturist, it is indispensable. Every member of a horticultural society in Ontario should read THE CANADIAN HORTICULTURIST. — R. B. Whyte, President Ontario Horticultural Association.

operations from Ontario to localities on the other side of the line or to the Maritime provinces. At present it is an utter impossibility for an isolated grower in Ontario to dispose of a small quantity of good apples to advantage.

COOPERATION ADVOCATED

The only method which promises a solution of the difficulty is that of co-operative selling. It is a fact not lightly to be passed over that in almost every locality in Ontario in which the apple industry is on a paying basis there is to be found a growers' co-operative selling organization.

More than any other one thing, we need reputable dealers with good marketing connections to come into Ontario and buy our fruit, paying therefor prices

*Extracts from an address delivered before the Apple Shippers' Association in Niagara Falls, in August.

kind, and late spring frosts are not prevalent.

"Fungus," or apple scab is, of course, common, but both scab and codling moth are kept under control by spraying. Instances are on record of orchards turning out as high as ninety-three per cent. No. 1 fruit. Choice varieties of No. 1 grade, such as Spy, King, Snow and McIntosh Red, sold last year for \$3.50 a barrel f.o.b.

The counties lying along the north shore of Lake Ontario, between Toronto and Belleville, contain the heaviest apple-producing section of the province. The orchards lie mainly within ten or fifteen miles of Lake Ontario, and the apple district is consequently a strip of country about ten or fifteen miles in width, embracing parts of Ontario, Durham, Northumberland and Hastings counties. The county of Northumberland is said to produce more apples than any other county in the province, and has to-day upwards of six thousand acres planted to apples, half of which are bearing.

There is already a large acreage of orchard through the whole Lake Ontario district and planting is still going forward at a rapid rate. In the western half of the section, the principal varieties in bearing are Baldwin, Spy, King, Greening, Russet and Ben Davis. The latter plantings contain more fall varieties. Stark is replacing Ben Davis to a certain extent. The eastern half of the district produces Ben Davis in a very large quantity, with Spy, Baldwin and Greening next in order. Of late years Ben Davis has fallen somewhat in popular favor and is being replaced by Stark.

SOME LARGE ORCHARDS

Orchards vary in size from five to twenty acres. There are not a few plantings of fifty acres or more in extent. At Oshawa, Newcastle and other points successful cooperative associations are in operation, and within the sphere of their immediate influence good care of orchards is the rule. Through the whole district cultivation cannot be said to be the general practice, although the better class of growers are accustomed to thorough tillage. Apple scab is in most seasons more or less common and the codling worm is also prevalent.

Spraying is fairly general through the district but is not so widely nor so intelligently practised as it might be. Late spring frosts are not often serious, but early frosts in fall are not unknown. The picking season is somewhat short and although the general practice through the district is to pack in the orchard, it is frequently found necessary to make use of barns and sheds for the purpose. The Oshawa and Newcastle Fruit Growers' Associations make use of their large packing houses for this purpose, apples being packed in the orchard loosely and without grading.

The Lake Huron district embraces a large area of country lying east and south of Lake Huron, including portions of the counties of Lambton, Huron and Bruce. In Bruce and the northern part of Huron, the apple belt is only a few miles in width, but in the southern part of Huron and in Lambton county the area extends inland for some distance. The climate is more equable than that of either of the districts previously mentioned, and extremes of summer and winter temperature are decidedly uncommon.

It is only in the northern part of the district that winter injury of trees has been noticed, and even here the districts immediately adjoining the lake are almost entirely free. The climate is moister than that of the counties lying to the north of Lake Erie and Lake Ontario and is consequently more favorable to a development of apple scab. Owing to the protective influence of the lake, late spring and early fall frosts are of rare occurrence. The picking season is sufficiently long to permit of apples being handled without danger of severe freezing. Codling worm is common, especially in the southern portions of the district.

DECLINE HAS BEEN HEAVY

The decline of orcharding is particularly noticeable through the Lake Huron district. It is only in certain localities that the industry is making progress. One cannot fail to be impressed by the large number of excellent orchards which are receiving little or no care. It is evident that encouragement of some kind is needed. Whether the growers will take the matter into their own hands and establish their own selling organizations, remains to be seen.

To a man possessing business ability and a certain amount of capital, there could be no more promising financial proposition than the leasing of orchards in this district, especially in the vicinity of Goderich, county of Huron. The men who are making most money out of the apple business in Ontario to-day are engaged in this line of activity. Large numbers of orchards of good varieties are simply occupying ground waiting for some enterprising man to take hold of them, and make them pay.

The apricot is as hardy as the peach, and it thrives in the same localities and under the same general cultivation and treatment, but demands rather strong soil.—From Bailey's *Cyclopedia of American Horticulture*.

Some of the best fruit districts in our sunset province, British Columbia, are greatly favored by nature for controlling fruit pests because of gentle rains or in some parts an almost entire absence of that commodity in summer. Bordeaux mixture or arsenate of lead applied in summer may be found in winter showing plainly on the bark and fallen leaves.

Root Pruning a Plum Tree

Prof. W. S. Blair, Macdonald College, Que.

In mid-summer of 1909 I dug a trench around a plum tree, about four feet from the trunk and about 20 inches deep. I then sowed some commercial fertilizer and filled up the trench. This year the tree has a good crop of fruit. The tree is 12 or 14 years old. It never bore before. Had the cutting of the roots anything to do with starting the tree to bear?—W.E.L., Dundas, Ont.

Any operation which checks growth during midsummer has a tendency toward the development of fruit buds. If a tree is making a strong vegetative growth it is not so liable to develop fruit buds, the energy apparently being directed to this channel. Any injury to the root such as root pruning would tend to check the vegetative or wood growth and as a result the energies of the tree would be directed to the formation of fruit. Nature is bound to reproduce her kind and any form of injury, especially during the summer, throws the whole energy of the plant towards bringing this about.

Late June and early July pruning is often advocated where trees are making much wood growth and not fruiting well. Pruning done at this season has the same tendency as the root pruning referred to, the tree apparently suffering a check from the operation. Early spring pruning on the other hand has a tendency to invigorate the tree for the reason that at this time the normal wood growth is being made and the removal of buds throws the energies of the root into the remaining buds.

Summer pruning to induce fruitfulness should therefore be done just about the time the vegetative growth is ceasing and the terminal bud about ready to form. If done earlier new growth of wood may result.

Trees growing in grass are liable to be thrown into fruiting for the same reason, namely, that during late June and early July the grass not only dries up the soil but removes a large proportion of available food material necessary for growth, checking the tree as a result, following which many fruit buds develop.

Harvesting the Grape Crop *

D. K. Falvey, Westfield, N. Y.

The grape crop usually requires from 90 to 100 days from date of blossoming to harvesting. Our harvest usually begins about September 25. A large percentage of the grapes put in baskets are packed in the field in eight pound baskets, drawn to the fruit house and wilted twenty-four hours. The baskets are then refilled when necessary, covered and taken to the car. Many pick in trays and after wilting the grapes pack them in baskets. This method insures a bet-

*Extract from an address delivered at the last annual meeting of the Ontario Fruit Growers' Association.

ter grade of fruit. Poor, slack packing has done more to hurt the grape market than any other cause. We need more of the golden rule principle put into effect if we expect to realize the maximum profits from our fruit. Honesty is the best principle always.

The car lots are handled by individuals, associations or grape companies.

The Vase Method of Training Fruit Trees

W. J. L. Hamilton, South Salt Spring, B. C.

To train fruit trees to the vase form, treatment must be commenced directly the trees are planted in their stations. I state this advisedly for, in my opinion, no orchardist should plant any but yearling trees, which, once planted, should be cut off close to a bud, at about 30 inches above the ground.

Set out in the fall (on the British Columbia coast) and pruned as above, once growth commences a number of shoots will start from the buds up the stem.

About five of these should be selected, so placed as to form an evenly balanced head, the lowest of them some fifteen inches above the soil, and the top one if possible the top bud. At any rate the tree top should be cut off immediately above the top shoot selected, if the highest bud is unsuitably placed.



Old Fruit Tree Partly Renewed

All other shoots should be rubbed off. This is all that can be done till the next season, when about one-third of the growth of these side shoots should be cut back—always to a bud.

During the following summer this top bud left on the shoot should be permitted to grow and another suitable bud, situated nearer the main stem on each shoot, should also be allowed its full scope. This will give us ten shoots in all, which, being trained properly at equal distances

Many cash buyers buy direct from the grower and sell in car lots. Large companies and associations have representatives in all the large cities who look after the business. Very few grapes are consigned. Grapes picked in trays for wine or unfermented grape juice are delivered from the vineyard to the car or wineries.

all around the tree, will form the framework on which the fruit bearing spurs will be formed.

All other buds should be permitted to grow to say six or seven buds during the summer, and, whilst the shoot is still green and tender, it should be nipped off close to the fourth bud. This, checking growth, tends to produce fruit bearing spurs.

Each season after this, the ten main branches should, in the winter, be cut back, leaving about two thirds of the season's growth, and in each case the terminal bud left should, next summer, be permitted full growth, whilst all others should be pinched back to the fourth bud.

By this method the ten main branches will be closely set all along their length with clusters of fruit bearing spurs, and all redundant growth of shoots, wherever it occurs, should be checked. Otherwise, it will both shade the fruit, and so prevent its full coloring, and will also spoil the form of the tree. This applies to the coast. Further inland more freedom of growth of the side shoots is admissible where the sun is so strong as otherwise to cook the fruit. Whilst young the tree can be tied into the cup or vase shape by means of tarred cord such as "Marlin."

When the growth has attained sufficient proportions a galvanized screw eye should be inserted into each of the ten branches at ten feet from the ground, and a No. 13 galvanized wire should be fastened, one to each eye, the free ends all meeting in the centre of the tree where they all fasten into a galvanized ring, thus all supporting one another. This prevents the snow or wind or weight of fruit breaking down the tree.

All fruit that cannot be reached from the ground can be picked from a plank passed through the centre of the "cup" of branches, just above the wire supports, each end of the board resting on a step ladder or trestle to carry its weight. If the tree had a central stem this would be impossible and the sun would not have the same free access to the fruit to color it. Also the tree would not be so easily sprayed, nor would the fruit be so cheaply thinned or gathered, while the repeated use of the necessary ladder would inevitably damage the tree.

A Renewed Peach Orchard

A. G. Pettit, Grimsby, Ont.

Old peach orchards can be successfully renewed by cutting off the tops and allowing new growth to take its place. One good limb or two small ones should be left for the first year in order that a crop may be secured from the trees during the period of renovation. The other limbs should be cut off to mere stubs of four or five feet in length from the main trunk.

A few years ago, when I started in to renovate an old peach orchard, my neighbors thought that I was working its ruin. The trees had become much too thick in the tops and had been planted



Old Fruit Tree, Wholly Renewed

too closely for the character of the soil on which they were to grow. They had been planted 17 and 18 feet apart, whereas in real good soil, they should be at least 20 feet or better still 24 feet apart.

Every other tree was dealt with the first year. The next year, the others were subjected to the treatment. By practising the process of renovation in this way, one scarcely notices the difference in the yield since the large limb, or if it be two small limbs, having almost the full benefit of the root system of the tree, will produce largely of fruit of extra fine quality. The second year, the new growth will bear a crop, thus the cropping is continuous.

My old orchard renovated in this way, is to-day as good a producer as my other orchards, the crop being both in quality and quantity as good as that produced on four or five-year-old trees.

The peach trees may be renovated in the manner indicated at any time of the year that it is most convenient. I did the work in late winter and early spring, which perhaps is the most favorable time.

Yellows and Little Peach

"Weary Worm," Winona

NOW is the time that the inspectors in the Niagara District are examining orchards for "Yellows" and "Little Peach." Where proper men have been appointed, in whom the growers have confidence they may be expected to do valuable work.

Both of these diseases are prevalent. During a recent trip through the district, while going over peach orchards in company with experienced growers, we detected several cases of "Yellows" in otherwise flourishing orchards.

From now on it is important that the official inspectors should make at least two thorough inspections of every peach orchard in each township, but even with the utmost care on their part, trees are almost sure to be overlooked. It, therefore, behooves every peach grower to be his own inspector, and he should therefore study the subject thoroughly, so as to be conversant with every symptom of the disease. He should also give every assistance in his power to the inspectors.

It is of vital importance that every peach grower should make a careful examination of their orchards from now till the end of October in order to detect at once the presence of either of these most fatal and infectious diseases. To young and inexperienced growers, of whom nowadays there are many, I would say, if there are any peach trees in your orchards that are sickly and showing symptoms like those about to be described, call in the inspector at once. If he is not available, get the most experienced grower in your locality to look your trees over. If either of these diseases be present, or if there is a strong probability that the trees are infected, destroy them at once, and do not lose any time in doing so.

DESTROY THE TREES

No remedy has been discovered for these two most fatal diseases, except that of pulling the trees out at once and burning them. If that cannot be done, cut off all the small branches and then load branches, trunk and all upon a dray or low wagon, carefully covering them over with a tarpaulin, and making absolutely certain that these infected branches do not come in contact with the branches of healthy trees.

Prof. Surface, of Pennsylvania State College, and M. B. Waite of Washington, have been engaged for some time conducting a series of experiments with trees showing symptoms of "Yellows," but so far no sufficiently conclusive results have been obtained to base public directions upon them.

"Little Peach," too, lies in the same category, but is even more dangerous than "Yellows," for the reason that replanting cannot take place on infected ground for many years after, whereas a

single season of rest suffices for Yellows.

CAUSE UNKNOWN

The cause of Peach Yellows has not yet been discovered. It is generally supposed to be a parasitic disease of native origin. Mr. Hale of Connecticut and Georgia, the great peach grower, considers it to be a sap disease caused by abrupt climatic changes. "Little Peach," on the other hand, is usually considered to be a soil disease.

Both of these diseases are strongly contagious. Individual trees or groups of trees affected by them, become centres of infection. These diseases spread from tree to tree by various natural methods, some of which are not fully known to investigators.

Prof. M. B. Waite, of the U. S. Department of Agriculture, Washington,

Sometimes only a single limb or twig of a tree is affected, nevertheless the tree is doomed and should be taken out instantly upon detection. In trees badly attacked the leaves turn yellow, but sometimes when it attacks very vigorous healthy trees, it at first stimulates both foliage and fruit.

Yellows is sometimes spread through the nurseries by means of buds taken from slightly infected trees, but is seldom spread by means of the pits, as pits affected by this disease will not grow.

LITTLE PEACH

"Little Peach," in some of its aspects, closely resembles yellows, but is undoubtedly a distinct disease. It is very contagious. An orchard in this locality that had three or four trees affected was allowed to go. Up to the passing of the present Act, the inspectors had no power to compel destruction of the trees. In one year nearly 300 trees were affected,



Flemish Beauty Pear Trees, Near Oka, Que., Loaded with Their Crop of Fruit.

who is a specialist on Yellows, has given out the information that communities where prompt concerted action was taken to destroy all diseased trees, only suffered a loss of from ten to thirty per cent. of their trees, but where slow or delayed action was taken, they suffered a loss of seventy to ninety per cent., and, in extreme cases, 100 per cent.

DANGER SIGNS

The most reliable symptom of "Yellows" is the premature ripening and red spotting of the fruit. It is upon this that most inspectors rely for detection of the disease. The disease, however, is often present in the orchard for some time before it can be detected upon the fruit. Other symptoms are a bushy or wiry twig growth, the inner leaves near the ground beginning to roll up and turn yellow—hence the name of the disease—and water sprouts starting from the main limbs.

and the entire orchard had to be destroyed.

SYMPTOMS

The foliage symptoms are similar to Yellows, but the fruit does not ripen prematurely, nor does it spot. It is generally undersized—in bad cases extremely so—hence the name "Little Peach," and late in ripening. Most of the fruit upon the tree is similar in color and appearance to poor specimens of ordinary fruit. It attacks Japanese plums as well as peaches, and is supposed to have been introduced into America with the Japanese plums. The trees do not water sprout nor is a bushy wiry twig present, but the leaves generally roll up and droop as in Yellows.

All peach growers should be on the keen look out for these two fell diseases. They should remember that incessant vigilance is the price of safety.

Protection from Frosts

In the Pacific Coast States fruit growers have experimented extensively to discover means of protecting their crops from early frosts. Last season, growers in the Rogue River Valley saved many acres of crops valued at \$500 to \$1,000 an acre at a total expenditure of not more than \$15 to \$20 an acre for firing. Adjoining orchards that were not smudged bore no fruit. This has led the United States Department of Agriculture to prepare a helpful bulletin dealing with this subject.

Frost prevention, the bulletin states, requires considerable preparation. It is impossible to get the material for fuel on the ground and have it distributed, especially where the orchards are large, after frost warnings are given out, since these warnings can not be given sufficiently in advance of the time necessary for firing in the orchards. Whatever the material to be used may be, it should be so placed that it may be readily distributed, and a sufficient quantity of it should be on hand in case it may become necessary to fire for a considerable length of time or in case several firings are required during the season. Usually it is never necessary to fire more than once or twice during the season, but during certain seasons it may become necessary to fire four or five times.

The material for building these fires, especially where brush and wood are to be the fuel used, should be piled up along the side of the field and, if necessary, covered to keep it dry so that it will ignite readily. This work may be done at any time during the summer or winter, whenever there is any spare time. Usually there are times when this work can be done without any real loss of time, since the men may not be able to do anything else with profit. At any rate, one should have a plentiful supply of fuel on hand and be sure that it is near by where it can be readily distributed and that it is in a dry condition so that it can be readily ignited. Failures in firing have been known where the grower failed to keep his material in shape for immediate use.

MATERIALS FOR FUEL

The materials which may be used for fuel depend largely upon local conditions. In some places the use of wood may be entirely out of the question. There is a choice in the use of coal, crude oil, straw, stable manure, or any rubbish which usually accumulates around the farm. In the experiments in the Rogue River Valley, while there was some variety in the matter of fuel, wood was principally used. In some cases good fir and even oak cordwood was used. In other cases old rails from fences which had been torn down, and even prunings from the orchard were used. In the Bartlett pear orchard of Mr. J. G. Gore the crops were saved for two years in succession by the

use of old fence rails. Old rails were also successfully used in saving the crop of a 7-year-old apple orchard. There are usually not enough prunings in any one orchard to be worth anything except for use in starting the fires quickly, for which purpose they are valuable if kept very dry.

USE SMALL FIRES

Experience has shown that the fires should not be large, since large fires tend to produce convective currents that are apt to bring in cold air; hence the quantity of material for each heap need not be

in the orchard. The value of the smudge, or dense smoke, is more to protect the trees from the early morning sun where some slight freezing of the blossoms and the fruit has occurred during the night.

(6) The cost of firing with wood and coal, including labor, should not average more than \$3 a night per acre, even where it may be necessary to keep the fires burning five or six hours. In some localities where wood can be had without expense except for the hauling, these figures might be reduced somewhat. However, in localities where wood is rather scarce they would probably be somewhat higher.



How Some Fruit Growers are Forced by the Express Companies to Market their Crops

Clarkson is only some sixteen miles from Toronto. Immense quantities of fruit are grown in the section. The express charges on fruit to Toronto, however, are so high that considerable quantities are hauled to the city. Several dollars a load are frequently saved in this way. A saving of nine dollars was made by Mr. Jas. Pengelley, on the load of farm produce here shown. So far the frequent complaints of the fruit growers to the railway commission have not been successful in righting these conditions.

very great. Large fires also might scorch the blossoms. From four to five pieces of cordwood, or its equivalent in any other kind of wood or old rails, are sufficient for a single fire; very often when the low temperature is of short duration all of this material will not be consumed in a single firing.

CONCLUSIONS

The following conclusions are given in the bulletin:

(1) Frost injury may be prevented by the use of fires and smudges.

(2) Wood and coal have proved to be the best fuel.

(3) When the temperature drops to 20 degrees F., it would seem that fifty fires per acre are necessary. Only half as many are needed when the temperature reaches, say, 25 to 26 degrees F.

(4) Shavings, chips, or other fine material in paper sacks saturated with crude oil or kerosene have been found best for starting the fires quickly. Kerosene torches for lighting the fires have also proved to be very serviceable as compared with matches.

(5) Straw and stable manure are valuable for producing dense smudges but are not effective in raising the temperature

Floral Notes

F. Wise, Peterboro', Ont.

September is the month of the first frost which as a rule continues for only one or two nights near the middle of the month. If a little protection is given to your flower beds and tender plants, they will continue to bloom and thrive until October.

Cannas and dahlias should be labelled and at the end of the month dug up and stored in a dry cellar. "By this I do not mean your furnace cellar, as it is usually too hot." Leave as much soil as possible on your canna roots when digging.

Geraniums, Petunias and fuschias, propagated early this month, will make good flowering plants for your late winter and early spring window decoration.

Roses should have a good thick mulching with green manure from the horse stable before protecting for the winter, which latter must not be done until hard frost.

All winter flowering bulbs for house decoration can be planted as they arrive from the seedsman. Place in pots with lots of drainage. Water thoroughly and place in a dark cellar and bring up as

wanted. A good soil for bulbs of almost any kind is a rich sandy loam.

Celery grows faster in September than at any other period of the year and must be given careful attention. Do not handle it when wet as it causes rust. A good watering with manure water in the trenches once a week, being careful not to touch the foliage, will be very beneficial and improve its quality.

Sow spinach for early spring use and when ground is frozen stiff enough to bear your weight cover with light litter.

September Work in the Flower Garden

Gather seeds in fine dry weather. Save seed from only the best types of flowers. Place them thinly in shallow boxes and dry them thoroughly in a dry, airy shed or room before storing them for the winter. Store them in the winter in a dry cool room, temperature about 40°. Avoid keeping them near a stove or artificial heat during the winter.

Keep weeds hoed down until frosts set in. Late seeding weeds mean an early spring crop.

Plants of seedling perennials may be planted out in the border early in September, or better still, unless they are strong and vigorous, keep them in the seed box or seed bed all winter and plant them in the early spring, as small seedlings are often destroyed when forking over the border in the early spring.

TIME TO TRANSPLANT

Seedling pansy plants sown in August should be transplanted into light fairly rich soil in cold frames or nursery plots in September. Select a place where drainage is good and no surface water lies in the winter.

Wallflowers and pentstemons that have not flowered or that are not through flowering can be dug up and potted into good soil. Shade the plants for a few days after potting. Sprinkle them with water every day to prevent wilting. Keep them out of doors as long as possible in fine warm weather, until about the middle of October. A few early light white frosts will not hurt them. Put them in a window away from fire heat, temperature about 50°. Keep the plants well watered at root and sprinkle the foliage with water every two or three days. They will give a lot of bloom during the fall and early winter months.

Canna and dahlia roots should be dug towards the end of the month before severe frosts. Cut the tops down after they have been blackened by first frosts. Dig the roots and place them under the verandah or in a shed away from frost for a week or ten days to dry, before storing in the cellar for winter. Canna roots like a rather warm moist place in winter, temperature about 45° to 50°, as they are of a tropical nature. Dahlia roots keep best in a cool, moderately

On first indication of frost pull all fully developed tomatoes and place them in a dry, shady place when they will ripen more evenly than when placed in the sun. Squash also must be gathered and placed in a dry place.

Strawberries should have their last cultivating this month. If you have an old bed that you wish to fruit another year give it a good fertilizer with blood and bone or some other good fertilizer.

Plant shallots and any other onions required for early spring use.

moist cellar, temperature 35° to 40°. Where a potato will keep well will suit dahlia roots.

Where the clumps of lily of the valley have become too dense and thick they may be transplanted now. They like a fairly light soil and a partially shaded position. All kinds of garden lilies that require transplanting may be moved now, but lily roots should be disturbed as seldom as possible. They are decidedly of the "Let me alone" class of plants and do not like much shifting about.

ORDER YOUR PLANTS

Order roots of paeonies now for planting early in October. October is the best time to plant paeonies. Dicentras or Bleeding Hearts are best divided and transplanted in October if they require it. *Corydalis nobilis* roots and *corydalis bulbosa* can also be transplanted early in the fall with better results than in the spring.

Chrysanthemums that have been planted in the garden should be dug up at once and potted into good rich soil. They require the same treatment as recommended for wallflower and pentstemons.

A great deal more depends on the laying out of a garden than on what is grown in it.—Miss M. E. Blacklock, Toronto.

Roses from June until November

The illustration shown on page 209, is of Mr. W. G. McKendrick's experimental rose garden on Toronto Island, where a foot of soil has been put on top of the ordinary island sand and the roses grown thereon. The garden is about seventy-five feet by fifty feet. It is enclosed on the north with a high board fence, on the east by a boat house and on the west by a residence. Two hundred bushes of hybrid perpetuals are grown, and 400 bushes of hybrid teas which Mr. McKendrick has been experimenting with to see if they will stand the winter in Canada. About 225 varieties in all are grown.

In December the rose shoots are tied together with raffia, and then the soil is hoed up around the rose bush in the same way that potato hills are made, covering the bush up from four to six inches from the ordinary level of the soil. This is all the attention the rose bushes received last year, and not over two per cent. of them died, although they were very weak bushes. On the fences and walls surrounding the rose garden are over 100 climbing roses embracing sixty-five named varieties, that, in another year, should make these garden walls "a thing of beauty."

The white dome shaped articles scattered through the garden are shades to keep the rain and sun off special blooms that the owner wishes to have protected that he may prolong their life.

The experience gained in this rose garden shows that from four to five crops of hybrid tea roses can be secured from each variety from about the end of June until the middle of November. While the roses are not so large as the bloom secured from the hybrid perpetuals, the fact that there is some bloom in the hybrid tea beds all through the summer makes this class of rose most desirable for amateurs.



Pansies Grown in Alberta—a Bed Sixty Feet Long and Wintered without Protection

These pansies bloomed from May until September on the grounds of Mr. D. W. Splee, Lacombe. They were transplanted in May into a bed dug extra deep, and heavily manured. They started to bloom almost at once and were one mass of bloom until the real hard frosts. They were kept well watered and the flowers continually picked.



The Rose Garden of Mr. W. G. McKendrick of Toronto

The soil in this garden is very light, consisting of over fifty per cent. of sand. The owner's idea is that every rose garden should be planted, if possible, where our hot Canadian July and August sun can not bleach out the

flowers after two p.m. This can be best accomplished by putting the rose beds in the neighborhood of large sheltering trees, where they will get all the morning sun, and be protected by the shade of the trees during the afternoon.

Familiar Autumn Flowers

Major H. J. Snelgrove, M.A., Ph.D.

Let us hope that there are no readers of THE CANADIAN HORTICULTURIST to whom Wordsworth's lines might be applied:

"A primrose by the river's brim
A yellow primrose was to him
And it was nothing more."

On the other hand, who of us can truly say:

"To me the meanest flower that blows
can give
Thoughts that do often lie too deep for
'tears.'"

The nasturtium is perhaps the most common of all our favorite annuals. It produces an immense number of flowers with the least trouble for the gardener, and it withstands drought and the intense heat of midsummer better than any other denizen of the garden. This flower is a native of South America, chiefly Peru and Chili. No wonder it is adapted to a hot dry climate. Although the fruit is pickled and finds its way to our dinner tables as an agreeable condiment, the flowers, presenting a glory of color, oftener appear there as an August decoration: golden yellow, pale straw, rich maroon, turning scarlet, intense red, delicate salmon, bright orange, æsthetic old gold, scarlet pink, grey silky purple, peach blow pink, streaky bronze, velvety maroon, ruby-eyed gold, and a long list of combinations of all these colors.

The most remarkable thing about the nasturtium is its prodigality of bloom. From six dozen plants one may gather

fully three hundred flowers each day for a period of two weeks, or about four thousand flowers. Such marvellous results can be obtained only under favorable conditions. The nasturtium wants plenty of sun, plenty of water, and nothing but sandy loam to grow in. It is curious to note that if we want many flowers we must pick each bloom as soon as it appears. If the flowers are allowed to fade on the plant, the latter comes to the conclusion that they are not wanted, and soon stops producing any more. As fast as the flowers are gathered, new ones begin to make their appearance; whereas, if left to themselves, there is a grand display of color for a short season, and then no flowers at all.

The humming bird is passionately fond of the nasturtium and it is amusing to see how the cute little fellow lingers over it, taking repeated sips of honey from flower after flower, apparently loth to leave such a paradise of sweets. There are three divisions of the nasturtium group: the dwarf, which does not climb; the Lobbianum, which runs along the ground, and climbs but little, and the Major, which attains a height of ten feet. Of these three varieties, the dwarf seems to give the best satisfaction, as it is the most prolific bloomer.

VERBENAS

Our charming garden verbenas, many of them, may be seen growing wild in Illinois and southward. As a rule, the

flowers are purple. Other varieties, pink, red and white, come from South America, generally the Argentine Republic.

The beautiful Virgin's Bower or clematis vine, hangs in festoons from the trees and covers the stone walls beside the roads which follow the river courses among the hills of New Hampshire. The flowers are produced in graceful clusters and in the fall the grey plumes of the flowers gone-to-seed, present a hoary appearance, which has suggested the name, "Old Man's Beard." It is hardy and flourishes in Ontario. The base of the vine should be protected from dogs, which are destructive to it. Clematis paniculata is a beautiful species. C. Jackmanni is a violet-blue flowered variety, whose blooms are often two inches broad.

THE MARIGOLD

The marigold is a garden flower which is not half appreciated. It has an extraordinary power of supply, and from July until late in November, if it is protected from frost, it will continue to bloom with unabating vigor. The orange and yellow are magnificent hues of the royal colors of the Prince of Orange. Like the nasturtium, the marigold requires to be continually picked. In England it is used to flavor soups, and its leaves are also boiled down in fat for use as a healing salve. But the marigold is more beautiful than it is useful, its colors resembling the close-fitting feathers on the neck of a bird. It came originally from South America and Mexico.

In the gaillardia of our gardens we have a cultivated flower which is originally a native of America. It came first from Louisiana, by way of France, and was first taken to Paris by M. Thouin, a professor of agriculture, in 1787. The plant was named after M. Gaillardet, who



A Toronto Factory That is a Thing of Beauty

This factory on King Street West, Toronto, near the subway, is admired by all who see it. It shows that other ugly factory buildings could be improved in the same way. Horticultural Societies can do good work by offering prizes for the best floral effects of this nature.

was a patron of botany. In its single form it is a pretty flower, slightly resembling coreopsis, but is more highly colored than the latter. The hues are varied in reds and deep and pale yellows. There are several double varieties, but this is a case where a beautiful flower gains nothing by the doubling process.

A CHEERY FLOWER

Bright-eyed coreopsis is one of the cheeriest of our August garden flowers, and it is distinctly American in character. The perennial variety, *C. lanceolata*, is commonly cultivated by florists.

The dahlia is named from a Swedish botanist, Dahl, a contemporary of the

great botanist, Linnaeus. The large conventional double flowers are not quite as beautiful as the single ones.

The zinnia, although a gifted flower, with a range of color comprehending nearly the whole scale, has one palpable fault. It is unmistakably stiff.

The Mourning Bride (*Scabiosa atropurpurea*) has been greatly improved of late. It was a favorite of the old-fashioned garden, but the newer varieties are so much larger and finer than the old, that it would scarcely be recognized as the same flower. The Black Scabiosa—a dark claret maroon color—has a striking effect.

Secure and Plant Your Cuttings in September

Wm. Hunt, Ontario Agricultural College

EARLY in the month is a good time for amateurs to increase their stock of flowering plants for the window. Cuttings of geraniums, coleus, iresine, salvia, ageratum, petunia and other perennial soft wooded plants are best taken in August, though geranium and petunia cuttings can be taken until early frosts set in. Coleus cuttings especially are best taken before chilly cool weather sets in.

When selecting and making the cutting, select a thrifty, vigorous terminal or side shoot of young growth. The length of the cutting must be determined by the habit of growth very largely, as well as by the texture or substance of the stem of the cutting. The selection of the part for the base of the cutting is most important to ensure success in root production. The base of the cutting should be of medium texture, neither too hard or woody, or too soft and pulpy, about the nature or texture of a young tender carrot. A cutting with a hard woody base develops roots very slowly, if at all, whilst a too soft, pulpy, sappy cutting will often rot or decay at the base without producing roots at all. Like all

other of the apparently minor but no less important details contributing to success in plant culture, much can and must be learned by close observation, experience and practice.

The base of the cutting should be immediately below and close to a node or joint of a main stem, usually where the base of the petiole or leaf stem—or flower stem—joins the main stem. With many plants, such as coleus, for instance, it is not absolutely necessary that the base of the cutting should be just below a node, as many cuttings will throw out roots between the nodes, but roots developed at points between the nodes are not usually as numerous or as strong as those produced at the node or joint.

The base of the cutting should be cut transversely so that the base of the cutting is level or flat. It is a mistaken idea to cut the base of the cutting at an angle as is often done, as this method often induces decay.

The lower leaves on the cutting should be removed, leaving one or two leaves at top of the cutting for transpiration purposes, or in other words, for sap circulation. The amount of leaves or



An Interesting Hybrid

Illustration No. 2. (See Article on Page 211)

foliage depends on the kind of foliage. If the leaves are large, as in the case of the geranium or some begonias, one or two leaves at the top are sufficient to leave. With smaller leaved plants, such as salvia and ageratum, a greater number of leaves can be left on. The smaller the leaves the more can be left on the cutting. The lower leaves should always be cut off close to the main stem. All stipules should be removed as well as all blooms and bloom buds where possible. With cuttings of some plants such as coleus, about one half of the two largest leaves on the cutting may be cut off. A sharp knife is necessary for taking cuttings.

MATERIAL AND APPLIANCES

A small shallow box is the best to root cuttings in although they will root very well in large flower pots or seed pans. A box 8 by 10 inches and three inches deep will hold from four to five dozen cuttings of mixed varieties of plants.

The bottom and sides of the box can be of half inch lumber and the ends of inch lumber. Five or six holes, half an inch in diameter, should be bored through the bottom of the box to ensure good drainage. About half an inch of broken flower pot, gravel, coal cinders or lump charcoal should be placed in the box first to keep the drainage clear. Use about an inch of this drainage material in each large flower pot if these are used. Then fill the box or pot with rather coarse, clean sand, pit sand is the best.

If lake or river sand is used see that it is free from sawdust, bits of wood or decayed vegetable matter of any kind. Rinse sand from the roadside can be used if free from impurities. The sand should be well moistened before being put in the box. Fill the box loosely level full, then



Plant Cuttings

First to the left—Coleus cutting, ready for putting in sand. Number two—Rooted Coleus cutting, showing root development at nodes or joints. Number three—Ageratum cutting, showing root development at the nodes or joints. Number four—Rooted Impatiens Sultani cutting (Bloom for Ever).

press down firmly with a brick or a small presser made of wood.

PLANTING THE CUTTINGS

The box is now ready for the cuttings. Now make a trench or drill with a strip of shingle or thin piece of wood about an inch from the end of the box. The trench should be just wide enough so that the base of the cutting can be inserted easily without bruising the end of the cutting.

Fully one half of the length of the stem of the cutting must be inserted in the sand. Press the sand firmly around each cutting. The cuttings should be from one to two inches apart according to the size and amount of foliage on the cutting. The cuttings are best set in upright in the sand. A black lead pencil can be used to make holes for cuttings instead of the trench if thought best. Water the cuttings well so as to settle the sand well around them.

Place the pot or box in a partially shaded position in a temperature of 60° to 75° until the cuttings are rooted. Under a tree out of doors would be a good place during July or August. A window with an east or north aspect is best at this season of the year. The cuttings should not be fully exposed to the hot sun at any time until rooted. The sand should be kept well moist after, but not soddened with water.

Coleus and ageratum cuttings will root in a week or ten days, oftentimes. Salvia, petunia and geraniums usually take fully double this time. When roots are about an inch or two in length the cuttings should be put into soil in boxes or pots.

A good soil for rooted cuttings can be made by mixing one part sand, one part leaf mould or black soil from the bush, and three parts of enriched loamy soil. Use small two inch pots for this purpose, or put the cuttings about one and a half inches apart into shallow boxes the same as are used for cuttings.

The cuttings need not be potted at once when rooted, as they will keep good in the sand for some time. They must not be given too much water. The sand should be kept only barely moist. I have kept rooted geranium cuttings in sand for several months by keeping them fairly dry at the roots and in a cool temperature of about 50° to 55°.

THE SOIL TO USE

Cuttings of many plants will root well in sandy soil. For geranium cuttings I have found a mixture of half sand and half potting soil to be as good in summer as all sand. Many cuttings can also be rooted in water but the roots produced in water are usually very soft and tender and do not endure the transfer from water to soil as well as cuttings rooted in sand or sandy soil.

LENGTHS OF CUTTINGS

The following is a table of the approximate lengths of cuttings of several species of window plants. The measure-

ments are given reckoning from the base of the cutting to the terminal point of growth where the stem or petiole of the topmost leaf leaves the main stem, and not from base of cuttings to tips of leaves.

Geranium	3	to	5	inches
Salvia	2	to	3	"
Coleus	2	to	4	"
Petunia	2	to	3	"
Ageratum	1½	to	3	"
Iresine	2	to	4	"

There is probably no feature of floriculture more interesting or fascinating in its character than plant propagation from cuttings or slips, especially when success attends the efforts of the plant lover. At this season of the year, when cuttings of plants suitable for this work can be had in profusion, the experiment should prove both interesting and profitable to all lovers of plants and flowers.

An Interesting Hybrid

H. J. Edwards, Winnipeg, Man.

The accompanying two illustrations may be of interest to readers of The Canadian Horticulturist. In 1904 I secured some seeds of Helianthus Cucumerifolius Grandiflorus, Giant Star (golden-yellow flowers with intense black centres), and Helianthus (Sunflower) Primrose Perfection. The seeds which were saved from time to time reproduced true to name, until last year, when I found amongst the Giant Star seedlings a plant which seemed to be much more vigorous than usual, this was carefully transplanted to another part of the garden, and eventually reached a height of about 7 feet. (See illustration No. 1.) In foliage and form of growth it resembled a true Helianthus Cucumerifolius Giant Star, but the flowers showed the markings of the Sunflower (Primrose Perfection).



Illustration No. 1. (See accompanying Article)

The flowers of the hybrid were produced on a long straight stem, similar to those of the Giant Star. The centre was dark, and the base and tips of the petals were a rich orange-yellow, the remainder of the petals being a very pale primrose. Illustration No. 2 shows a bloom of the hybrid and one of Giant Star. The former is the largest bloom. The Giant Star usually grows about three to four feet in height, and the flowers measure from four to five inches in diameter. The flowers of the hybrid were fully nine inches in diameter. As I do not remember ever reading or hearing of such a cross before, it is just possible that some of the readers of The Canadian Horticulturist may be able to give a little light on the subject.



Geranium Cuttings

Number one (on left)—Geranium cutting, not prepared. Number two—Geranium cutting, undesirable hard cutting. Number three—Typical Geranium cutting, ready for putting in sand. Number four—Rooted Geranium cutting, ready for potting.

The Gardens of New Ontario

THAT the Temiskaming District in New Ontario has large horticultural possibilities, is evidenced by the excellent gardens that are to be found in the vicinity of New Liskeard and Englehart. Nearly every farm throughout the clay belt has a kitchen garden, and frequently these are among the first things the farmer points out to the skeptical visitor from the south as a proof of the tremendous possibilities of the district.

Possibly the horticultural conditions of Temiskaming can be better set forth by a reference to one of its successful gardeners—Mr. J. A. Brillinger who when seen by an editorial representative of *THE CANADIAN HORTICULTURIST*, was taking off his fourth crop. Mr. Brillinger has been in Temiskaming a little over three years. Previously he was a gardener at Stouffville, near Toronto. He is, therefore, in a position to compare New and Old Ontario from a horticultural point of view.

His garden of thirty-three acres is within the corporation of New Liskeard on the north-west shore of Lake Temiskaming. It is about five miles from Haileybury, and the far-famed silver city of Cobalt is ten miles distant. Its proximity to these three urban centres of the north affords Mr. Brillinger an immediate market for practically all his produce. However, he sells as far south as Temagami—seventy-two miles from North Bay, and north to the end of steel at Cochrane.

As a general thing the spring is a little later in New Ontario than in the older parts of the province, with the result that the Old Ontario gardener is on his land perhaps two weeks ahead of those in Temiskaming. But the New Ontario gardener is ready for the market as soon as the Old Ontario one. That is the thing that it is hard for the people in the south to believe. In the clay belt the sun stays on the job nineteen hours a day during part of the summer, and to the uninitiated the growth is astonishing. "As an example of the rapid growth here," said Mr. Brillinger to the writer, "in eighteen days after we sowed the seed our radishes were all pulled and sold. Indeed, everything does well in this northern climate. We have had cabbages since July 1; one head weighed seventeen pounds. Last year we set out fifty thousand plants and forty thousand headed. We usually do a little better than that.

"Cucumbers and cauliflowers do exceptionally well. Frequently we have had a single cauliflower weigh eight or nine pounds. Vegetables invariably give better results here than along the front and our market is the very best.

"Another thing in which we have an advantage is the absence of insects. Our radishes mature so rapidly that the radish

maggot has not time to hatch, and the loss due to it is entirely eliminated. We do suffer a good loss through the ravages of the cut worm and this year potato bugs are very plentiful. However, we are free from many insects with which the Old Ontario gardener is continually waging an unprofitable war."

The season is too short to ripen tomatoes, but there is always a large crop of green ones which find a ready and profitable market. Asked if tomatoes matured in Temiskaming; "no, they do not ripen successfully," was the reply. "The growth is so rapid that the nourishment goes to increase the size of the plant rather than to ripening the fruit. Then the nights are cool, and tomatoes need warm nights. But the crop of green tomatoes is enormous."

CORN UNCERTAIN

The short season makes corn an uncertain crop. However, like tomatoes, it sometimes proves very profitable. It would be a mistake to think that tomatoes never ripen in the north. They frequently do, sometimes practically the entire crop, but always a percentage, which varies according to the season. The same



Cabbage at the Toronto Exhibition

is true of corn. Two years ago Mr. Brillinger had a considerable area in corn which turned out well, netting him something over \$30 to the acre. Last year, however, an early frost destroyed his corn before he had used any, with the result that he lost it all.

BIG CROPS OF BEANS AND PEAS

The crop of beans and peas in New Ontario is double that in the older parts of the province. "I can hardly explain the reason," the writer was told, "but I believe it is owing to the large percentage of lime in the soil. In one season the peas blossom three times, and we take off as many crops."

Mr. Brillinger does a very extensive business. Each week he averages seven to eight hundred dozen bunches of onions, one thousand dozen bunches of lettuce and radish each, and other vegetables in proportion. He employs six men.

"There is a wonderful future for horticulture in Temiskaming. Small fruits, such as strawberries, raspberries and currants produce abundantly and the quality

is the very best. At fifteen to twenty cents a box a single acre of strawberries will yield \$400 worth of fruit," Mr. Brillinger concluded.

There is little danger of summer frosts. Last year, Mr. Brillinger lost \$1,000 worth of vegetables by a heavy frost on August 23. But when the country becomes cleared and drained and the sun is allowed to reach the ground, these frosts will become unknown.

Ginseng Growing

E. A. Rossell, Brantford, Ont.

The small number of people who grow ginseng in any quantity is remarkable considering the profit that can be made at the prevailing prices and the decided advantages that it possesses over many other crops. About ten years ago a wave of excitement passed over America at the reports of fabulous profits to be made with little labor in growing this plant. A large number of individuals and companies embarked in the business while the wave was at its height, and the dealers in plants and seeds profited at the expense of a host of experimenters who obtained nothing but experience.

Most of those who took up the business with enthusiasm soon lost interest when they found that ginseng required attention and labor as well as any other plant, and especially so when they had to wait for five years before any returns could be obtained. But there are a number of growers in various parts of Canada who, unknown to all but their immediate neighbors, have persevered and are now reaping the profits which can be made by all who follow their example.

TWO DRAWBACKS

There are two features incidental to the cultivation of ginseng which deter many from planting it or making it a regular crop. One of these is the necessity of providing a shade of some kind, usually in the form of a lath screen erected on posts. This means some outlay of time and money, but the large profits which can be made from a small piece of land more than compensate for this extra initial outlay.

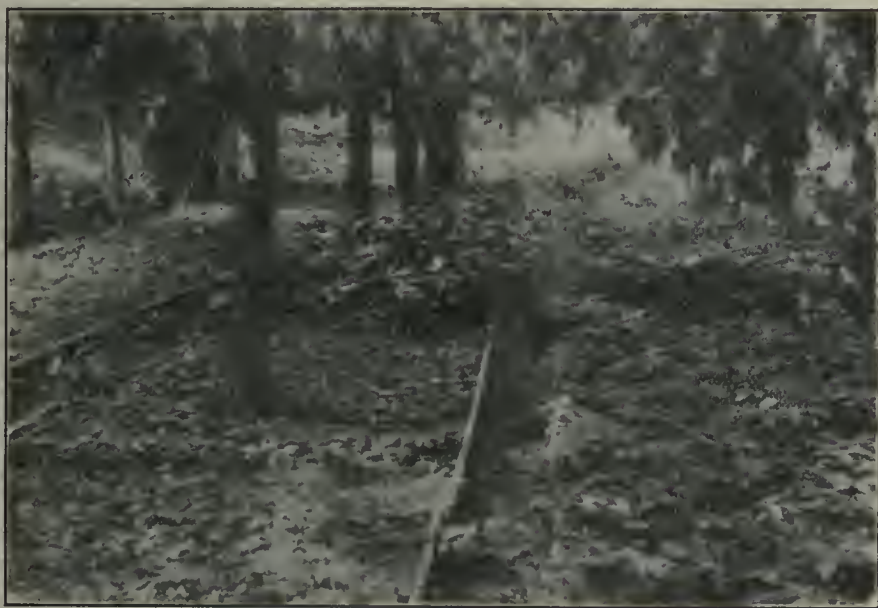
The other objection is that one must wait for so long a time before obtaining a marketable crop. We are accustomed to wait from three to eight years for orchards to come into bearing, but it appears singular to most people that a plant which seldom grows higher than thirty inches should require five or six years to mature. This objection is also counterbalanced by the large returns which can be obtained.

SOME ADVANTAGES

There are a number of advantages which the ginseng grower has over the fruit-grower or ordinary gardener, and which should appeal especially to those

who have only an uncertain amount of spare time that they wish to employ as profitably as possible. One of the chief of these is that the crop is staple and practically imperishable. The dried root may be held indefinitely without loss and the green roots may be left in the ground for another year if the grower has not the time to spare to dig them.

After the second year of growth the plant will do well with almost no attention beyond providing shade, although during the first two years ordinary care must be given to weeding and mulching. There is also very little trouble with the insect pests and blight which make so much work for the fruit-grower. The plant has great vitality and will survive



One-year-old and Three-year-old Ginseng Plants in the Garden of Wm. Gilgour, Peterboro' Ont.

neglect which would kill most products of the garden.

The best way for one to commence growing ginseng is to buy one year old roots and seeds during the first and second years; after that enough seed will be produced to continue annual planting. If one has decided to plant extensively the proper way is to set aside a piece of land for the purpose and to keep this end in view while developing the garden. An acre of land divided into five plots of equal size, to be planted annually in rotation, would provide room for a regular annual crop of 15,600 roots which should yield over 900 pounds of dried root worth at present prices, \$6,750.00. After the first plot is cropped it should be replanted with young roots. This would be an exceptionally large garden, but the same principle of rotation applies for a garden of any size.

Aside from the profitableness of the plant it is a very interesting one to grow and presents many opportunities for improvement by methods of selection which make it attractive to the amateur.

Harvesting and Marketing Onions

Fred Smith, Scotland, Ont.

The method we have followed for over twenty years in harvesting our onions has been to pull them by hand or to run a knife attached to the cultivator under them. The latter is the quickest and easiest way, but the ground has to be clean from weeds.

After loosening the onions from the ground they are pulled together in windrows, usually six rows in one. They are allowed to dry down thoroughly before topping operations begin which is generally within about ten days. The number of days depends upon the condition of the

bottoms. The measurement of the crates was twelve inches high, thirteen wide, and eighteen long. The slats were nailed to three cornered posts, leaving an inch space between each slat. The slats were two and a quarter inches wide by three eighths of an inch thick.

The onions were cut loose with a half round knife attached to the cultivator and allowed to dry for a few days. They were then raked into windrows of twelve rows each, a wooden rake being used. They were then crated with the tops and removed to shelter and allowed to cure for two weeks or more if necessary before being topped.

I find that onions handled in this way are a better color and splendid keepers.

An advantage gained by using the crates is that if bad weather comes and you cannot work outside your help loses no time.

This year my crop will be topped with a topping machine run by a gasoline engine. We have a topper here made by a local man that with a few improvements will be a complete success. It is made with two inch steel rollers six feet long and has six rollers. The rollers run in pairs and are set on a slant. The onions are poured in one end and as they run over the rollers the tops are pulled off and the onion runs out into a bag.

I always sell my onions in carlots. Until last year they were put up in eighty pound sacks. Now the buyers want the seventy-five pound sack, which is the standard sack. I run all my onions over a wooden screen with slats an inch and a half apart which removes all the dirt and pickling onions. Grown or spoiled ones are picked out. I never ship out a car of onions without sorting them over the screen even if they have only been sacked up for only a few days.

The Root Maggot

Prof. H. A. Surface

The little white maggot that destroys garden truck, especially onions and cauliflower, is a root worm or root maggot, one species attacking the cauliflower and cabbage, and another closely related, injuring the onions.

One way of preventing injury by them is to dust around the plants some air-slaked lime, which has been sprinkled with turpentine or carbolic acid. The adult or mature form of this maggot is a fly, about the size of a house fly. The female lays her eggs at the roots of the plants, and as these hatch the little larvae commence to feed on the outer growing tissue of the roots, and cause the damage by eating this away. The preventive material should be applied before the eggs are laid.

crop when it is pulled. If the tops went down naturally, without being rolled, they will be ready to top within that time.

Some use shears to top with, but I prefer an old case knife with a blade four inches long with a rounded, blunt end to prevent hacking of the fingers. Onions topped in the forenoon are better sacked up in the afternoon when they are dry and then removed to shelter.

Onions should never be picked up wet under any circumstances as it makes them dirty and is apt to discolor them. Years ago it was the practice to allow the onions to remain on the ground for several days after topping to cure in the sun which is a great mistake. The sun not only makes them strong but badly discolors them. The side exposed most will turn green which is very undesirable from a market standpoint.

ANOTHER METHOD

In 1909 I followed a different method, and in my judgment a far better one. In the winter of 1909 I made a thousand bushel crates with slatted sides, ends and

The Canadian Horticulturist

Published by The Horticultural
Publishing Company, Limited

PETERBORO, ONTARIO



The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF THE ONTARIO, QUEBEC, NEW
BRUNSWICK AND PRINCE EDWARD ISLAND
FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.
2. Subscription price in Canada and Great Britain, 60 cents a year; two years, \$1.00. For United States and local subscriptions in Peterboro, (not called for at the Post Office) 25 cents extra a year, including postage.
3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than \$1.00.
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CIRCULATION STATEMENT.

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1909. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1909.....	9,456	January, 1910.....	8,925
February, 1909.....	9,310	February, 1910.....	8,967
March, 1909.....	9,405	March, 1910.....	9,178
April, 1909.....	9,482	April, 1910.....	9,410
May, 1909.....	9,172	May, 1910.....	9,505
June, 1909.....	8,891	June, 1910.....	9,723
July, 1909.....	8,447	July, 1910.....	9,300
August, 1909.....	8,570	August, 1910.....	8,832
September, 1909.....	8,605		
October, 1909.....	8,675		
November, 1909.....	8,750		
December, 1909.....	8,875		

Total for the year .107,638

Average each issue in 1907, 6,627
" " " " 1908, 6,695
" " " " 1909, 8,970

Sworn detailed statements will be mailed upon application.

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We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

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PETERBORO, ONTARIO.

EDITORIAL

BRITISH COLUMBIA PESTS

The very suggestion by an eastern grower or paper, that an insect pest of any serious nature exists in British Columbia is sufficient to lead the advocates of the fruit interests of that province to work over time denying the thought and casting aspersions upon the originator. While we admire this indication of provincial pride, we are not blind to the fact that unless precautions are taken it will ultimately prove an injury to that province.

Even when growers know that a pest is becoming established it frequently is only too difficult to induce them to take the necessary measures to stamp it out or control its ravages. It is easy for most of us to believe what we would like to know is true. The continual claims, therefore, that serious insect and fungus pests do not exist in British Columbia are apt to lull the growers of that province into a false sense of security and lead them to neglect to take the ordinary precautions that it is essential that they should if their interests are to be properly safeguarded.

In our May issue we ventured to make the statement that some parts of British Columbia still grow apples unmolested by the Codling Moth. The June issue of The Fruit Magazine, published at Vancouver, took exception to the statement and expressed doubt as to whether or not the editor of THE CANADIAN HORTICULTURIST could find a Codling Moth in any part of British Columbia. In the August issue of the same magazine appears an article entitled "Codling Moth In British Columbia". This article admits that the Codling Moth has been discovered in two spots in that province and warns the growers that the fact must be bravely faced. The public is asked to co-operate with the provincial officials in stamping out the pest.

In 1890 the late Dr. Fletcher, Dominion Entomologist discovered the Codling Moth at Kamloops, Kaslo and Nelson. In 1908 in one district one hundred and sixty orchards were condemned for Codling Moth.

Now that the British Columbia authorities admit the presence of the pest and have undertaken to stamp it out, prospects of its being held under control are brighter than they were when growers were being led to believe that Codling Moth was unknown in the province.

MODIFICATIONS REQUIRED

Serious hardship will result to the interests of the professional florists of Canada unless modifications are made in the regulations of the Dominion government pertaining to the Destructive Insects and Pests Act. The Act is admirably conceived but in drafting it, it is clear that the government had in mind mainly if not entirely, conditions as they pertain to the large fruit interests of the country.

The conditions under which stock is handled and grown by the large nurseries, and by the fruit growers of the country in the open are utterly different from those under which the professional florist handles his greenhouse stock. The great expense involved in the handling of such stock as the florist grows makes it practically impossible for such pests as the Gipsy and Brown-tail moths to gain a foothold in this country on such stock.

At present much of the stock that the

florists have been in the habit of importing at periods that will enable them to market their products for the early markets cannot be imported any longer unless the Act is amended. The omission of the port of Montreal as a port of entry is a second decided weakness in the regulations. Now that the objections of the florists to the provisions of the Act have been made known to the government, we may reasonably expect that the government will find some means of improving the regulations in these particulars.

COMMENDABLE WORK

The statement made by Dr. C. Gordon Hewitt, Dominion Entomologist, at the Convention of the Canadian Horticultural Association in St. Catharines last month, that during the past two years the Dominion government has inspected some four million plants during their importation into Canada, thereby discovering five hundred and nine nests of the Brown-tail and Gipsy Moths shows that good work is being done by the Dominion government to prevent the establishment of these pests in Canada. The state of Massachusetts alone has spent over a million dollars fighting these pests.

The sums that have been expended by the national government of the United States as well as by the New England states during the past few years fighting these pests are enormous. They amount to many millions of dollars. Canadian fruit growers, therefore, will do well to support the Dominion government in its work. It is fortunate that the Dominion Entomologist, Dr. Hewitt appreciates the importance of the position and that he is taking every precaution to guard our interests.

THE SMOKE NUISANCE

There are sections in many of our Canadian towns and cities in which the lives of many of the citizens are made miserable owing to the thick palls of smoke that factories and locomotives are permitted to emit for many hours every day. This smoke affects the health of the people living in its vicinity, it discolors adjoining buildings, destroys foliage and invades homes, when windows or doors happen to be left open, thereby destroying furniture. The nuisance can be and should be abolished or at least greatly reduced.

After suffering from the smoke nuisance for many years residents in various towns and cities of the United States were finally led to grapple with the problem. Investigations were conducted which show that by the installation of proper machinery and care in firing the engines the smoke nuisance can be abolished. The American Civic Association took up the question some years ago and forced it to be an issue in a number of cities.

Such cities as New York, Philadelphia, Springfield, Mass., Cleveland, Ohio, and Pittsburg, Pa., have practically abolished the smoke nuisance. In many cases the cities were forced to take action against the railway companies and manufacturing establishments that persisted in defying their ordinances. In most cases only a few prosecutions were required to convince offenders of the need for improvement. In Cleveland, Ohio, it is estimated that 50% of the smoke nuisance has been abated since this question has been dealt with. In New York city one company which broke the smoke by-law was fined \$500.

Toronto has already taken action. Property Commissioner R. C. Harris reports that the efforts of the city have accomplished a great deal of good. People who formerly treated the enactment lightly are

now making sincere efforts to comply with its provision.

The horticultural organizations in our different Canadian cities, particularly in Ontario where they are well organized and strong, might well grapple with this question as similar organizations have in the United States. They will find much helpful information in a bulletin issued by the American Civic Association in March, 1908.

The death of the late H. S. Peart has imposed upon the provincial government the necessity of appointing at an early date a director of the experimental station at Jordan Harbor. It is essential that this station shall become one of the foremost experiment stations on the continent. This means that the director must be a man of the highest possible qualifications. The provincial government must be prepared to spend a larger sum than it has hitherto for the services of the director. The salary allowed should be at least \$2,000 and a free house. Nothing less will be likely to attract a man competent to fill the position with credit to the section and to the province.

Dairy Commissioner Ruddick, who is at the head of the Fruit Division of the Dominion government, is to be commended upon the efforts he is making to develop the trade in tender fruits between Canada and Great Britain. The sums that will be involved in the prosecution of experiments of this nature are trifling compared with the results we may reasonably expect will be obtained. The experiments, therefore, should be made as complete and thorough as possible.



PUBLISHERS' DESK

Friendly Criticism

Friends of THE CANADIAN HORTICULTURIST occasionally suggest that it would be a great improvement if we would print THE CANADIAN HORTICULTURIST on high grade coated paper, if we would use more and larger illustrations and if we would enlarge the different departments of the paper. In this connection they point out that THE CANADIAN HORTICULTURIST is smaller than some of the leading United States and British horticultural publications.

We would remind our readers that Canada is but a young country sparsely settled. THE CANADIAN HORTICULTURIST is devoted largely to the fruit interests of the Dominion. The principal fruit districts in Canada are located in Nova Scotia, the counties adjoining the lakes in Ontario and in British Columbia. They could not well be more widely scattered. This makes it expensive to increase our circulation and often difficult to hold it.

Our country being small the number of advertisers is limited. These conditions make it impossible for us to publish as large or as high class a paper as can be issued in the United States where there are over 80,000,000 people. We feel, however, that we can safely say that THE CANADIAN HORTICULTURIST is a better publication, considering its opportunities and possibilities, than most, if not all of the but few publications with which it is sometimes compared unfavorably. Canada is growing rapidly and if our readers will but stand by us loyally THE CANADIAN HORTICULTURIST within a few years will more than hold its own with any similar publication in the world.

The Box Apple Package--Its Uses and Limitations in the East*

Dr. S. W. Fletcher, Director of Virginia Agricultural Experiment Station

THE barrel has been the standard and almost the only package for winter apples for over half a century. It has several distinct advantages. Owing to its rounded sides, it can be packed easily and rapidly, even by the unskilled; and, for the same reason, it can be handled more easily by rolling than any other package of equal bulk. Until within ten years it has also been a cheap package. Now, barrels cost most fruit growers from thirty to forty cents instead of fifteen to thirty cents as formerly. The apple barrel is an eastern package, and is made of hardwood, usually of elm and oak, which are more common in the east than in the west.

HISTORY OF THE BOX PACKAGE

The apple box, on the other hand, is a western package. Open bushel boxes have long been used in the east for shipping vegetables and early apples. The closed box has also been used somewhat, by a few individuals, notably by Mr. L. Woolverton, of Grimsby, Ont., who was exporting wrapped apples in bushel boxes, 128 apples to the box, fifteen years ago.

But the real introduction of the apple box as a commercial package for winter apples is coincident with the rise of commercial apple growing in the Pacific coast states, within the past fifteen years. The prototype of the apple box is the orange box. The Pacific coast apple growers face conditions that have made the box, rather than the barrel, their almost exclusive apple package. The most important condition is their great distance from markets, and consequent high transportation charges. It costs 50 cents to raise a bushel of Hood River apples, and 50 cents more to lay it down in New York. This makes it imperative to economize space and the box packs tighter in a car than the barrel, especially the old fashioned barrel with a three or four inch bilge.

But the most important effect of the great distances and high rates has been on the grading of the fruit. There would be no profit in paying such high transportation charges on inferior fruit. Only fruit that will sell at the top of the market will justify the outlay. This means carefully graded fruit, fully as much as high quality fruit. The box package enforces careful grading. The shiftless "shuffle pack," is still used in some parts of the west, but in most cases apples packed in boxes are placed tier upon tier. This is expensive, but the cost of grading is small compared with the cost of getting the fruit to market, and the returns usually justify the outlay. The points to be noted are that great distance from markets and high transportation charges have forced the western fruit grower to grade more carefully than his eastern competitor; and that the bushel box, in which uniformity is imperative, has thus become the distinctive western package.

Another condition that has had some influence is the fact that the soft woods predominate in the west, and the hardwoods in the east. The barrel is a hardwood package; the box is a softwood package. Some boxes are now being made in the east from poplar and yellow pine, but they are decidedly inferior to the fir, spruce, and white pine boxes of the west; not only because they are heavier and more rigid, but also because they come in narrower widths. The bushel apple box is the most logical and

fitting package that the west could develop out of the material at hand. In view of the rapid reduction of our natural forests, we must soon expect to face the necessity of forest tree culture. The soft woods, being more rapid in growth, will become more common and cheaper than the hardwoods, hence the barrel will tend to become more and more costly, as compared with the box.

HIGH PRICES FOR WESTERN FRUIT

Eastern apple growers have been more or less nettled, and their ambition stimulated, by the high prices received for western box fruit in recent years. It is rather galling to eastern men to see a bushel box of Washington or British Columbia apples selling for the same price as his own three-bushel barrel. It relieves him somewhat to dilate upon the superior "quality" and "flavor" of his own fruit.

GRADING AND PACKING

The fundamental difference between the two types of packages is here. The box encourages and almost enforces, honest and uniform grading, while the barrel permits carelessness in this respect. The cost of packing is also an item. Where a very large quantity of fruit is packed by specially trained men, it costs little if any more for labor to pack in boxes than in barrels. But the small grower, and especially one who has been accustomed to the barrel pack, will find that it costs from one third to one half more to pack in boxes than in barrels.

Small, or otherwise inferior fruit seldom if ever yields as high returns in the box pack as in the barrel pack. Only the large sizes go well in boxes. It is a question for each grower to decide whether he can get more by sorting out his fancy and No. 1 stock for boxing and selling the smaller fruit in barrels, than to sell all in barrels as No. 1's.

Another point to be considered is the shape of the fruit. It is almost imperative that box fruit should be quite regular in shape. Lop-sided and mis-shapen fruit, like the York, especially from young trees, would not pack well in boxes.

No one has ever succeeded with the box pack using common stock. Only fancy and No. 1 fruit of the best quality has paid in boxes. By intensive methods and especially by thinning the young fruit on the trees, many of the best western growers have been able to produce fruit ninety-five per cent. of which is fancy. Practically all of the Hood River fruit is box fruit. I doubt if, on an average, thirty per cent. of the apple crop of Ontario, or any other part of the west, is box or fancy fruit. This point must be kept emphatically in mind when the suggestion is made that the box should become the exclusive apple package of the east, as it is now in the west.

QUALITY OF FRUIT

Of far less importance than the grade of the fruit in the package, in respect to the question before us, is its quality. It is a fact, however, that the box fruit that has commanded the highest prices is mostly of varieties of high quality. Winesap, Spitzenburg, Newtown. But other varieties, even some of very indifferent quality, have been sold in the box package to great advantage, showing that the style of package and the grade of fruit, rather than its flavor, are the deciding factors. However, the general experience has been that the better the quality of the fruit, the more apt it is to pay in the box pack. If varieties of inferior quality pay in the box pack, it is be-

*Extract from an address delivered at the meeting of the American Pomological Society last September.

cause the style of package and the grading outweigh the deficiency in quality.

EXPERIENCE IN THE EAST

Having in mind the essential difference between the box and the barrel trade, it does not seem strange that most of the attempts to use the box in the east have not resulted satisfactorily. It is probably near the truth to say that eight out of every ten trials of the apple box in the east have been unsuccessful. A notable example is an experiment by the Field Pomologist of the United States Department of Agriculture, Mr. W. A. Taylor, several years ago. He sent abroad during two seasons, eight carloads of carefully graded boxed Baldwin, York and Newton, but with indifferent results as compared with barrels. There are many possible reasons for these failures.

CUSTOM

Custom is hard to change and the box package is an innovation in the east. As a rule, eastern buyers and grocers do not look with favor upon the box, partly because the profits in repacking and selling a barrel of indifferently packed apples are apt to be greater than in handling three well packed boxes. If the producer could deal direct with the consumer, it would be different; there is no doubt but that a majority of the consumers prefer the box, or a smaller package, if the fruit did not cost much more.

THE MARKET

A good deal depends upon what a certain market prefers, in the matter of fruit packages, as well as in fruit varieties. In the west there is special necessity for caution in this respect. Some buyers want their

fruit in boxes, and others prefer barrels, according to the market they expect to reach. The grower who ships should be equally wise.

POOR PACKING AND GRADING

More failures arise from this cause than from any other. The art of packing boxes is not acquired in an hour. It is work for specially trained men, not for the average farm help. In this respect it differs materially from barrel packing, which may be quite well done by ordinary help. Moreover, the habits of several generations of

men who have packed in barrels, using "facers", and "fillers", have descended to the fruit growers of to-day and many of them find it extremely difficult to keep the smaller, poorly colored, or slightly imperfect specimens from gravitating to the bottom of the box. It will take a generation or two, perhaps, to breed out that habit. The western man deserves no credit for being more honest in this respect, for, as has been pointed out, honesty was not merely the best policy for him, but the only policy that would pay freight rates.

Canadian Fruit Prospects

With the exception of British Columbia the crop of fruit in Canada this year will be unusually light. The crop in a large part of the United States is also light as well as in Great Britain and Europe. The shortage is world wide and prices for fruit should rule high.

British Columbia will harvest probably the largest crop in the history of the province. The Deputy Minister of Agriculture, W. B. Scott, is apprehensive that there will be serious loss owing to the scarcity of labor. Orchard laborers are asking \$3.00 a day. In the adjoining states of Washington and Oregon, where Oriental labor is more available, labor can be obtained at about half that price.

In Nova Scotia the fruit crop will be the most signal failure on record. This is due in a large measure to severe frosts on June 5 and 6. With few exceptions, trees, that bore heavily last year, are almost bare this year. There are odd sections where

Gravensteins and other varieties are good, but for the most part they are a failure. The quality, too, promises to be poor. Owing to the small crop many growers ceased spraying and fungous diseases are more in evidence than usual. Pears, plums and other fruits will also be light. Secretary for Agriculture, M. Cumming, in an excellent crop report he has issued, reports that the year will be a disastrous one for the fruit growers.

In eastern Quebec the apple crop is very light as well as in the counties of Huntingdon, Chateauguay, Rouville, Bagot, Lotbiniere and Brome. The bloom was abundant, but the frost of June 3rd destroyed it and although the fruit set well it later nearly all dropped. Mr. August Dupuis, director of the provincial fruit experiment stations, writes The Canadian Horticulturist that owing to the shortage a few carloads of apples of fall and winter varieties from Ontario should find a ready

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ONTARIO PROSPECTS

The June drop in Ontario was so heavy as to materially affect the apple crop, which will be much lighter than was first expected. Along the north shore of Lake Ontario the apple crop will not be more than about one half of last year's crop, and a poorer sample than usual will be harvested from unsprayed orchards.

Along the Ottawa and St. Lawrence Rivers, although the drop was heavy, a fair crop of McIntosh, Fameuse and Alexander apples will be harvested. In southern Ontario, while early apples will prove a fair to good crop, winter varieties will prove lighter than usual. In Perth, Wellington, Waterloo and Simcoe counties winter apples are almost a failure.

ENGLISH CONDITIONS

The report of Wardell & Co., of Liverpool, is that the apple crop of the United Kingdom will be the worst known for many years. Reports from the Continent also show that the fruit crop is very poor. English dealers report that the British markets are ready for fruit and that good prices will be paid. Taken all around the apple crop of the world this year is likely to be one of the lightest ever harvested.

PEARS

Pears will be a medium to good crop in Ontario, Nova Scotia and British Columbia.

PLUMS

Plums will be a light crop in some sections of Ontario especially in the Georgian Bay district and the counties bordering on Lake Huron and Lake Erie. British Columbia will have a large crop.

PEACHES

Early peaches have been a good crop in British Columbia. In the Niagara district

peaches will be a good crop although not as heavy as last year.

VALUES

The Dominion Fruit Division reports that all No. 1 apples and pears, both early and late, will find a ready sale and that early apples have sold at good prices both in the northwest and on the eastern markets.

Cold Storage for Fruit

In order to assist in the establishment of an export trade in early apples and tender fruits, the Dominion Department of Agriculture has again arranged with the steamship companies for the reservation of cold storage chambers for fruit only, on steamers sailing from Montreal to Glasgow, London, Liverpool and Bristol, as follows:

Glasgow—Saturnia, Donaldson Line, September 8th.

Glasgow—Hesperian, Allan Line, September 17th.

Glasgow—Ionian, Allan Line, September 24th.

Glasgow—Grampian, Allan Line, October 1st.

London—Huron, Thomson Line, September 17th.

London—Devona, Thomson Line, September 24th.

London—Cervona, Thomson Line, October 1st.

Liverpool—Megantic, White Star-Dominion Line, September 17th.

Liverpool—Dominion, White Star-Dominion Line, September 24th.

Liverpool—Laurentie, White Star-Dominion Line, October 1st.

Bristol—Royal Edward, Canadian Northern Line, September 15th.

One chamber on each of these steamers

will be available for shipments of fruit at the regular rate of freight, to be paid to the steamship companies in the usual way. A proper temperature will be maintained in these chambers regardless of the quantity of fruit carried. In every case, shipments should reach Montreal not later than the morning previous to the day of sailing. The Department of Agriculture will assume no responsibility in connection with these shipments, but there will be the usual supervision by the government cargo inspectors at Montreal and at the port of destination. Thermographs will be placed in the chambers so that a complete record of the temperature on each voyage will be secured.

As the space in the chambers is limited, shippers who wish to take advantage of the facilities offered should make application for space to the steamship agents as early as possible before making shipments. Applicants should state the kind of fruit and the number and size of the packages to be shipped. Freight will be accepted in the order in which the space is booked.

In connection with these sailings, arrangements will probably be made with the railways to run one or more iced cars weekly to Montreal to pick up export shipments of fruit. Full particulars of this special iced car service will be given later. Meanwhile shippers are reminded of the fact that iced cars may be obtained on both the Canadian Pacific and Grand Trunk Railways until October 1st, for export shipments of not less than 24,000 pounds of fruit from one station, on which this Department pays the cost of icing up to \$5.00 a car. Prospective shippers are requested to advise the Dairy and Cold Storage Commissioner, Ottawa, as to the date when shipments will be made and the quantity and kind of fruit to be forwarded.

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Pot Hyacinths

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"Dear Sir:—Let me express the pleasure I had in my visit to your large block of Herbert Raspberries. I have seen these fruiting now for a number of years, and have sampled the fruit in every form, and believe that the Herbert is the coming commercial berry in earliness, size and quality. This will certainly be the case where the hardiness of the cane is of importance. I have such faith in its merits that I propose to supply the capital to a tenant of mine to make a plantation of five acres of the Herbert this fall.

"Really too much cannot be said for the Herbert on account of its hardiness. The quality of the berry is, in my opinion, rather better than Cuthbert, especially when canned, and it also has the advantage in size. I do not know when I gave a recommend with heartier good-will.

"A. McNEILL,

Chief Fruit Division."

"Johnson, Nebraska, May, 13, 1910.

"W. J. Kerr, Esq.,

Woodroffe, Ont., Canada,

"Dear Sir:—The Herbert Raspberry plants came to hand O. K., and were planted the same day, and seem to not feel bad for changing their nationality, as they are starting to grow nicely, and they certainly look as if they were built for business.

Yours respectfully,

"G. S. CHRISTY."

The above letters are evidence of the genuineness and quality of our Herbert plants. The Herbert has no equal as a heavy yielder of strictly high class berries. We are the only nurserymen who have ever secured plants from the originator.

The originator, with Mr. W. T. Macoun, Dominion Horticulturist, Alexander McNeil, Chief of the Fruit Division of the Dominion Department of Agriculture, and a staff representative of The Canadian Horticulturist, inspected and approved our large stock of plants, this past summer, so we are not ashamed of them.

Write for descriptive circular and price list.

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Growers at Ottawa, of hardy trees, shrubs, vines, small fruit plants, etc. We offer a large stock of strong rhubarb roots for winter forcing. We have also a large stock of the new Hydrangea Arborescens, or "Hills of Snow," and other hardy shrubbery, evergreens, etc.

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Threatened Insect Invasion

In an address delivered at the convention of the Canadian Horticultural Association in St. Catharines last month, Dr. C. Gordon Hewitt, Dominion Entomologist, stated that Canada is threatened with an invasion of the Brown-tail and Gipsy Moths. They may be introduced either from the New England states or from Europe whence they first came to America. The Destructive Insects and Pests Act, recently passed by the Dominion government, was drafted with the object of guarding against the introduction of these pests into Canada.

Last year the division of entomology inspected imported European stock and found one hundred and ninety winter nests of the caterpillars of the Brown-tail moth. Over a million and a half plants were examined. This year about two and a half million plants were individually inspected and three hundred and thirteen nests were found. Each of these nests might have contained several hundred hibernating caterpillars of the moth. Dr. Hewitt stated that he could not insist too strongly on the importance of the utmost precautions being taken to guard against the introduction of such dangerous pests.

The Florists and The Tariff

The annual Convention of the Canadian Horticultural Association was held in St. Catharines, Aug. 10 to 12th. This association represents the professional florists and gardeners of Canada.

It was decided to request the Dominion government to make certain changes in the tariff on plants. The principal discussion took place over the tariff on palms, on which there is now a duty of 20%. The government will be asked to place palms on the free list. It was decided not to ask

for any change in the present duty of about 20% on greens such as smilax and asparagus, green laurels, rose plants of all kinds, carnation plants, bedding plants, greenhouse plants known as stove plants, and ferns. A request will be made to have a duty of 20% placed on cannas and gladioli, which are now admitted free. A duty of 20% is now charged on aquatic plants. A request will be made to have these placed on the free list.

The government will be asked to amend certain regulations of the Dominion Insect and Pest Act so as to permit of greater freedom in the importation of florists' stock. The government will also be asked to have the port of Montreal made a port of entry.

The following officers were elected: President, J. Connan, Hamilton; 1st Vice President, A. C. Wilshire, Montreal; 2nd Vice President, R. L. Dunn, St. Catharines; Secretary, Wm. C. Hall, 825 St. Catharine St., Montreal; Treasurer, C. H. Janzen, Berlin; Executive for three years, E. I. Mopsted, Ottawa, H. B. Cowan, Peterboro, and W. Mustin, Davisville.

The Cold Storage of Apples

Bulletin No. 24 entitled, "A Report on Some Trial Shipments of Cold Storage Apples," by J. A. Ruddick, Dairy and Cold Storage Commissioner, has recently been issued. It gives the results of some practical tests of the advantages of cold storage for late winter and spring shipments. Much valuable information is contained in this bulletin.

Every result in the experiments points to the importance of immediate storing after picking. The advantage gained by the prompt cold storing of the apples after picking was strikingly manifested. The

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bulletin advocates having the cold storage facilities for apples located as near as possible to the point of production.

The experiments indicate that it is practical to ship carefully packed winter apples, that have been promptly cold stored, without repacking. This is important as it would be an immense advantage to the apple trade if repacking could be dispensed with.

CAN EXTEND THE SEASON

Mr. Ruddick claims that the usual season for greenings may be extended several weeks if the apples are well matured on the trees and placed in cold storage without delay after picking.

It is frequently asserted that apples deteriorate quickly after being removed from cold storage. It would seem to depend entirely on the stage which the ripening process had reached. Apples ripen slowly in cold storage. If they are held until the limit is nearly reached, they naturally deteriorate quickly when removed, but no more quickly than they would if the same stage had been reached in ordinary storage at any temperature.

There is evidence in the results of the trials to show that apples which are cold stored promptly after picking and held at 32-34 degrees for say five months, then removed to a high temperature for one month, will be in a better condition at the end of the sixth month than if they had been exposed to the same high temperature for the first month and then placed in cold storage for the rest of the period. Or, in other words, exposure to a high temperature just after picking, when the life processes are active in the apple, will cause more injury than the same exposure at a later stage.

Renew your subscription now.

Ontario Methods Criticised

The following extracts from two letters received recently by The Canadian Horticulturist should be of interest to Ontario fruit growers:

We are not handling any Ontario fruit and do not expect to with the exception of grapes and possibly some Snow apples. The trade in our section have been "done" so frequently on Ontario barrel apples that it is a very difficult proposition to sell them at any price in competition with the other stuff from British Columbia and Washington that is honestly packed.—Royal Fruit Co. Ltd., Edmonton, Alta.

Unless Ontario fruit growers adopt a better method of packing and shipping their apples for the western trade we fear they will lose this market to a large extent, as the British Columbia and Washington growers seem to have a much better method of packing and shipping than the growers of Ontario.—Stockton & Mallinson Limited, Regina.

Items of Interest

The greatest fruit show ever held in New Brunswick will take place in St. John during the month of November. The provincial government has granted \$500.00 in prizes which has enabled the officers of the New Brunswick Fruit Growers' Association to provide an attractive prize list. Copies may be obtained on application to the secretary, A. G. Turney, Fredericton, N. B.

The Department of Trade and Commerce reports that on account of the shortness of the crop of English orchard fruits this year there should be a good demand for Nova Scotia cranberries and at good prices, providing that shipments are made early.

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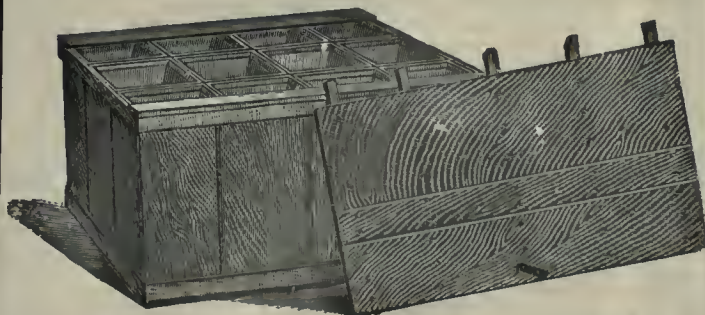
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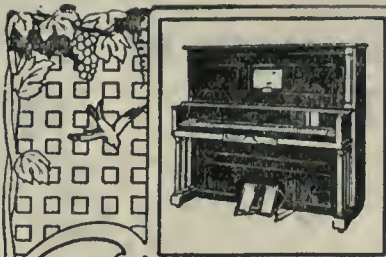
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Whitby, Ont.

Information for Fruit Shippers

Information relating to the provisions of the Inspection and Sale Act of the Dominion Government, better known as the Fruit Marks Act, is contained in bulletin No. 11, recently issued by the Dairy and Cold Storage Commissioner, for the guidance of fruit growers and shippers. The bulletin contains the Act with notes explaining each separate provision. The explanations show that the owner of apples at the time of packing is responsible for the grading and marketing. His name and address must appear on each package. Among the explanations given are the following:

Marks made on packages with ordinary lead pencils are not considered "indelible" as required in the Act where it specifies that the packer must mark his name and the name of the variety or varieties of apples on each package. A stencil is the best means of complying with the law, although a rubber stamp makes a plain and indelible mark if carefully used.

In case no name appears on packages, the government may take proceeding against the owner of the package where ascertained and otherwise against the party in whose possession the fruit is found.

When the name of a variety of fruit is unknown or doubtful, shippers are at liberty to substitute the word "unknown" for the variety name.

The definitions of grades, Fancy No. 1 and No. 2, do not vary from year to year, nor do they vary in different provinces of the Dominion. If the quality of the fruit generally is poor, the only result is that a smaller proportion of the fruit is of the higher grades.

Where the word "uniform" is used referring to the character of the fruit in a package, it is meant to refer to the specimens in each individual package. Normal sized apples and very large apples, packed in the same package are not considered uniform.

"Slacks" and over-pressed packages are considered as not properly packed when the condition is likely to result in permanent damage during handling or transit. Defects causing material waste, include abnormal growths, bruises, immaturity and the effects of fungous diseases.

The practice at one time common, of placing upon the barrels the name and address of the apple operator, instead of the name and address of the owner of the apples at the time of packing, renders the apple operator liable for the package. When a conviction is made upon information laid by a Dominion fruit inspector, the inspector does not receive any part of the fine. The whole fine is payable to the receiver-general.

Ineffective Arrangement

A. V. Main, Almonte, Ont.

I question if we as a gardening community are moving onward in the importance of arrangement, effect and taste in the horticultural regime. One is more convinced of this when viewing the surroundings of fall fairs and the miserable appearance of many towns, with weeds and dead trees so conspicuous in the principal thoroughfares. When a few excel with original arrangement of flowers, fruit, plants and vegetables at fairs and some amateurs do similar justice in maintaining well-kept grounds around their dwellings, why does the large company of us not make amends? To make a town beautiful with well balanced shade trees, flower beds, lawns, etc., individual effort is chiefly responsible. The individual who possesses the faculty of taste in his horticultural pursuit is well gifted.

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Table decoration supplies a variety of taste. In this line, many ladies forget the real use of the table. Too many flowers and green material are employed and the view of the guests often is obstructed.

At horticultural exhibitions, collections of plants and cut flowers are unnecessarily stiff and artificial. The first prize exhibits usually are well set up, every flower is seen to advantage and the blending of color is calm, quiet and harmonizing. The unsuccessful exhibits may contain flowers that are perfection, but they are so imperfectly displayed, that they are void of attraction to either judge or spectator.

In vegetable exhibits, there is need of improvement. The general rule is everything mixed up. The word "effect" is scarcely known. There is much to gain from exposing our goods to the best possible advantage. Have your exhibit on a slope and keep each sort of vegetables grouped together. By all means, have names attached to all.

In the greenhouse or conservatory, stiff formal groups are evident by the various modes of arranging. They could be doubly attractive. There is no need for having the same old view and artificial aspect.

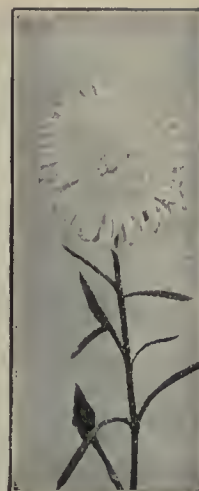
The suburbs of a town supply another picture. Every effort and much money is lavished on the mansion, ornamental walls and fancy verandahs and railings. When the landscape man is required, who is he? Oh, some handy man who claims that he is a most capable authority for laying out grounds. The result is a levelling up of the ground, a lawn is supposed to luxuriate on the surface of bricks or mortar, and some rank growing trees are planted that have to be hacked and limbed-up in a couple of seasons, for they are practically unsuited to the restricted area. Have a practical man for such work; for what is the most gaudy and costly house without a tasteful arrangement of lawns, trees, shrubs and flowers? A well-kept place commends itself in the locality. It is the admiration of those on foot, bus, car and automobile. Can any precept be given to imbue us to aim at advancement in horticultural management?

Further Fumigation Regulations

An additional regulation has been adopted under the Destructive Insects and Pests Act, of the Dominion government, by which all nursery stock originating in Japan or in any of the states of Vermont, New Hampshire, Maine, Massachusetts, Connecticut and Rhode Island shall, after fumigation, be subject to inspection at the point of destination and cannot be unpacked except in the presence of an inspector. Already a number of injurious insects have been found on Japanese stock. The introduction and establishment of some of these might prove to be as serious as the introduction of the San Jose Scale.

Dr. Gordon Hewitt, Dominion Entomologist, informs The Canadian Horticulturist that a number of insects occurring in Japan, including the Apple and Pear Fruit Borers, have established themselves on the Pacific coast. Others have been found which might readily do so.

Prof. A. M. Soule, the President of the Georgia Agricultural College, addressed the members of the Lincoln Farmers' Institute at Vineland, Ontario, last month. He claimed that a soil survey should be made of the Niagara district so that the people would know just what the land was and how it should be fertilized and treated to obtain the best results.



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Enesburg Falls, - Vermont.

Peaches for England

Alex. C. Biggs, Oakville, Ont.

Our customers in Great Britain who ordered peaches from us last year were delighted with the fruit we sent and with its condition on arrival. On the whole our last year's shipments were a decided success.

This year we have sent out 1,000 circulars to our customers asking orders for peaches delivered anywhere in Great Britain. We see no reason why we should not ship these goods to the Old Country. We have had considerable correspondence with our Trade Commissioner, Mr. W. A. MacKinnon, of Birmingham, who is an expert on fruit, and he has pointed out to us the mode in which he considers this fruit should be packed, and we are endeavoring to follow out his instructions, and hope to be successful with a much larger quantity than we shipped last year. We are planning to deliver these from Glasgow, Liverpool, London and Bristol, and are negotiating for space on the different lines to these ports.

There is one great obstacle standing in the way of this line of trade. That is the need for a cheap fast service between the fruit districts and Montreal. It is true, we can ship by express but that is very costly and takes the profit in comparison with freight rates. If the Government only owned the railroads this trouble would be overcome, and not only would the shipment of this kind of fruit for export receive an impetus, but many others would receive the same benefit. We cannot use refrigerator cars unless there is a full car lot which might be a costly speculation for individuals to engage in. Under present conditions we are forced to ship often, in small quantities, by various routes, and by the fastest service that can be obtained.

English Tomatoes

A shipment of fine English tomatoes was received recently by Mr. J. Lockie Wilson, Superintendent of Agricultural Societies for Ontario, which had been forwarded by the Royal Edward, taking just six days and three-quarters. The box contained tomatoes in three stages of ripeness. They were grown in the county of Kent. Several persons who tasted them and compared them with Canadian-grown tomatoes without knowing which was which preferred the home-grown product, as richer in flavor. The home fruit is also firmer and larger.

The English tomatoes appeared to have been grown under glass. Mr. Wilson has shipped in return three boxes of Canadian tomatoes. A larger quantity will be sent in September, along with a shipment of peaches.

Items of Interest

The St. Thomas, Ont., Horticultural Society, in cooperation with the public schools of the city, will hold a floral exhibition on September 22, 23 and 24. The scholars will exhibit their school work of the last term. A musical entertainment will be given by the St. Thomas Operatic Society.

The annual report of the Canadian Forestry Association for the current year (1910) has just been issued, and is now being mailed to members of the Association. A full report of the convention held in Fredericton, N. B., in February last is contained in the volume. Requests for copies of the report should be addressed to Jas. Lawler, Secretary Canadian Forestry Association, Ottawa, Ont.

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SEPTEMBER 20th, 1910



Horticulture is an important branch of the course of study. For earnest and enterprising young men, **Horticulture** in its various branches offers as large a reward for intelligent well directed effort as any other pursuit or profession. To those interested in fruit-growing, market gardening, nursery work, floriculture, or landscape gardening, the primary object of the course is to lay a foundation for the most successful and intelligent work. To this end both the science and art or the theory and practice are taught. While the sciences are invaluable in giving accurate and definite knowledge regarding the origin and growth of plants, and the composition and physical properties of soil, they cannot

tell us just how to select varieties or how to propagate, transplant, cultivate, fertilize, prune, spray or what is equally essential in practice, harvest, store and market the product to the best advantage. In the class room and laboratory or in the field in the busy season a student attending College has an opportunity to study these various operations, and also to learn the why and wherefore so far as is known.

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Under the Auspices of St. Catharines Horticultural Society

WEDNESDAY, THURSDAY AND FRIDAY

September 14, 15 and 16, 1910

AT THE ARMOURY

ST. CATHARINES, ONTARIO

Nearly \$1500 in Prizes

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Decorated Tables, Etc.

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Horticultural Society Competition for VALUABLE STERLING CUP

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Asters, 50 blooms in 5 vases.

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Geranium, double, 20 blooms, in 4 vases.

Hydrangea, 3 spikes in 1 vase.

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Stocks, 10 weeks, 12 spikes in 3 vases.

Vases will be provided.

Cup to become the property of the first Society winning it twice. Open to all Horticultural Societies in the Province, other than the St. Catharines Society. Notice of Entry should be given to the Secretary as early as possible that sufficient vases may be provided, and space assigned.

GEORGE GORDON, St. Catharines,
Secretary for District Exhibition

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Correspondence Invited

NOTES FROM THE PROVINCES

Annapolis Valley East, N. S.

Eunice Watts, A. R. H. S.

Growing crops are still being benefited by periodical showers,—so far the season has not been excessively hot. The shortage in the apple crop is already beginning to influence other industries. Coopers have turned away their men owing to orders for apple barrels being cancelled; this in turn affects the store-keepers and others who sell goods or hire labor. On the mountains the orchardists were more fortunate in escaping the frosts, but it is going to be a hard year for many growers in the valley.

Fall web-worms with their nests stand out conspicuously, while various other caterpillars in less quantities are scattered through the orchards. The brown beetles are attacking the cherry trees, but they are controlled by Paris green or other internal poisons.

The first shipments of apples, Crimson Beauties, went off during the first week in August; Astrachans and Duchess soon follow. Gravensteins come in about September 10th. The first ripe tomatoes were gathered here on August 10th.

Experiments were tried in the nursery of spring budding, but as these were not successful, the stocks are being re-budded. The

buds are preferably inserted on the north side of the young tree and are tied in with raffia which is cut away when the bud has swollen. These little scions remain dormant until the spring when they send out a vigorous shoot if the stock has been properly pruned and cultivated.

Herbs should now be cut and dried for winter use, they are better if gathered while in flower.

This has been an exceptionally bad year for bees. At the beginning of the season they stored a lot of honey, but owing to so much wet weather they were unable to forage and consumed their surplus stores. Even where they have not been treated for non-swarming, they have shown very little inclination to leave the hive.

Montreal

E. H. Wartman

The arrivals of various kinds of fruits from Ontario this season have not been in excess of the demand. Therefore they have brought a good average return. We find to-day crates and baskets of uniform sizes adapted well for the carrying of fruits safely to our markets. Cherries and Cuthbert raspberries were exceptionally fine and prices high.

Apples coming forward in 11 quart baskets have been generally of poor quality and poorly graded. The few that were properly graded and packed brought full prices.

Melons of the Montreal type are coming in quite large quantities in crates eight inches each, and have met with quick sales.

The world-famed Montreal melons are said to be below an average crop, although some patches are yielding well. I counted 400 melons on about one-sixteenth of an acre at Macdonald College Farm that were of superior quality, 10c per lb. is the usual price at this farm.

Peaches are coming forward from Ontario largely in 11 quart baskets, Cling Stone type, largely ungraded and selling low, while California, large Elberta and Crawford are selling at \$1.25 per two layer wrapped boxes. These peaches keep for 10 days in order, which gives dealers a good chance to dispose of them. Our own early kinds rot very quickly on arrival, therefore, dealers buy cheap and in limited quantities.

I fancy that the man who would grade his peaches, pears, plums and apples in baskets to a uniform size, large or medium, and put a slip of paper under each netting with the word "graded" and stick to such principles would be amply rewarded. We see these words on the boxes of Mediterranean lemons from top to bottom. I have seen these lemons sold and the prices ran high because this brand had been handled over, individually, and found true to uniform grading. It is a name we want for good grading and profits will follow.

Niagara District, Ontario

The berry crop is almost over now, blackberries and black currants being the only small fruits now coming on the market. The raspberry crop was somewhat disappointing not turning out much over half a crop. Blackberries have been a good crop and are bringing a fair price.

Early peaches are abundant and are bringing a fair price. The market is keen for them.

Early plums are scarce except Burbank, which is a fair crop. Many Burbanks from here are being shipped to the west. They carry well and are bringing a good price there.

Early pears are nearly over and Bartlett's

The Fonthill Nurseries

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Currant Flowering
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Spiraea Anthony Waterer
Spiraea Van Houttei
Siberian Dogwood
Snowballs
Syringas in in variety

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Golden Elder
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Lilacs, New Japan
Viburnum Lantana
Weigela Eva Rathke
Weigela Rosea

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Beech, Fern Leaf

Catalpa
Linden (Basswood)
Mt. Ash Oak-Leaf
Carolina Poplar

Mt. Ash, Weeping
Maple, Norway
Maple, Silver
Laurel Leaf Willow

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Shasta Daisy
Sweet William

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Helianthus
Iris German

Iris Japan
Phlox
Paeonias

Boltonia
Coreopsis
Fox Glove

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STONE & WELLINGTON

TORONTO, ONTARIO

are beginning to come in. There is a good crop of these of excellent quality. Early apples turned out pretty well around here and some very nice fruit has been shipped. Mr. T. H. P. Carpenter, of Winona, had some particularly fine samples of Astrachans and Duchess. There has been a heavy drop of apples and both fall and winter varieties will not be more than a moderate crop, nor will the quality be anything extra.

The better plums are commencing to come on the market, such as Washington, Bradshaw, Imperial Gage, etc. Washingtons and Bradshaws are a good crop in the district this year but the Bradshaws are inclined to run small in a good many orchards.

Grapes still look very well. They will be nearly an average crop; red grapes over an average and of good quality. The markets are in a very healthy condition from a fruit growers' point of view and the prospects are for somewhat better prices than ruled last year. A quantity of fruit and tomatoes is going to the west from here already; seven cars left Winona alone on Aug. 20th with the west as their destination.

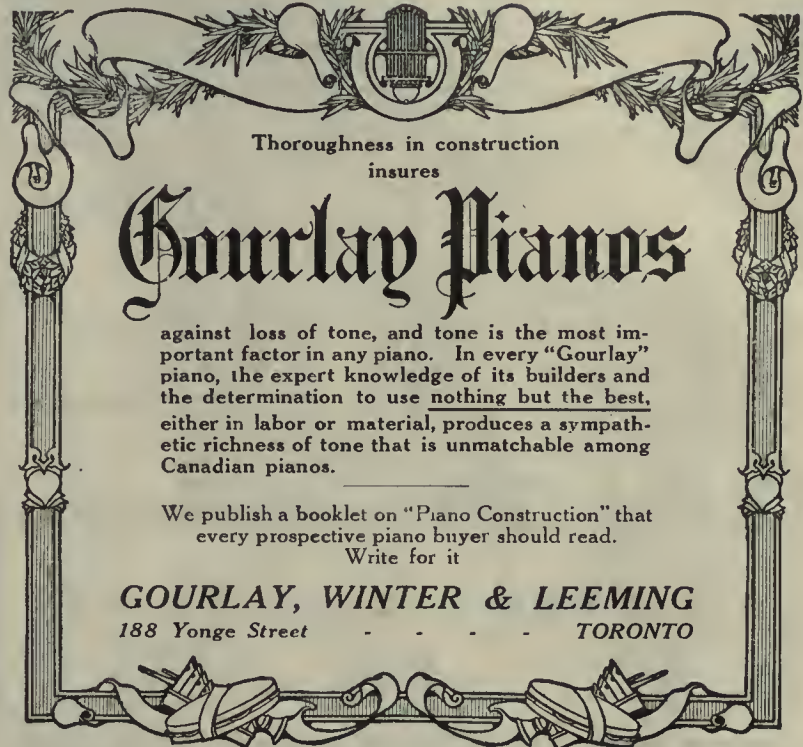
The better class of peaches are going to be a pretty good crop, not quite as heavy as last year, in my estimation, but some think that there will be just as many. Elbertas are not nearly as good a crop.

Tomatoes are plentiful and the price has fallen.

Plums are rotting quite badly in unsprayed orchards.

The following was the range of prices on the Hamilton market on August 20th.

Fruits: Blackberries, per crate, \$2.25 to \$2.50; red currants, per crate, \$1.25 to \$1.50; gooseberries, per basket, 75c to \$1; black currants, per basket, \$1.10 to \$1.25; apples, per basket, 15c to 40c; peaches per small basket, 15c to 25c; peaches, per large



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Orchard Cushions	Pulp Circles
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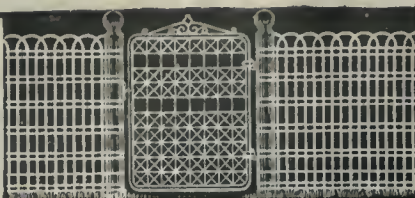
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Is a good Midland Centre for the distribution of Canadian Apples.

I can handle large quantities and solicit Consignments via

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I invite correspondence.

Tom King

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**APPLE SHIPMENTS
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LIVERPOOL and the CONTINENT**

W. D. Peacock & Co.

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SOLICIT CONSIGNMENTS

The High Standing and Long Experience of this Firm is a Guarantee that the Best Interests of Consignors will be conserved.

If You Want to be Sure of Quality
Buy

NA-DRU-CO

Medicinal and Toilet Preparations

You certainly take no chances when you buy any toilet article or medicinal preparation which bears the name NA-DRU-CO and this trade mark.

As soon as you see "NA-DRU-CO" you can be absolutely certain that the article is the very best.

The National Drug and Chemical Company of Canada, Limited, has spent thousands of dollars in perfecting this line of over 125 NA-DRU-CO preparations.

The formulæ are the best known to medical science.

The purity and strength of the ingredients are assured by rigid tests.

The compounding is done by expert chemists, who are thoroughly qualified for a work so vital to your health.

Knowing that everything has been done to make them right, we guarantee, positively and unreservedly, each and every NA-DRU-CO preparation. If you find any one unsatisfactory we want you to return it to the druggist from whom you bought it and he will refund your money.

Ask your physician or druggist all about the NA-DRU-CO line. They are men of standing in your community, worthy of your confidence, and in position to tell you, for we will furnish to any member of either profession, on request, a full list of the ingredients in any NA-DRU-CO preparation.

NA-DRU-CO Dyspepsia Tablets
Cure sour stomach—heartburn—flatulence
—indigestion—chronic dyspepsia.

NA-DRU-CO Headache Wafers
Stop a headache in 30 minutes.
Contain no harmful drug.

NA-DRU-CO Talcum Powder
3 kinds—Violet—Rose—Flesh Color.
Gems of refreshment and refinement.

NA-DRU-CO Laxatives
Act without any discomfort.
Increased doses not needed.

NA-DRU-CO Baby Tablets
Relieve Baby's ills. Especially
valuable during teething.

NA-DRU-CO Tooth Paste
Cleanses throughout—prevents decay
—makes the teeth beautifully white.

National Drug and Chemical Company of Canada, Limited

Wholesale Branches at:

Halifax—St. John—Montreal—Ottawa—Kingston—Toronto—Hamilton
London—Winnipeg—Regina—Calgary—Nelson—Vancouver—Victoria.

40

basket, 25c to 50c; pears, per basket, 15c to 40c; plums, per basket, 20c to 35c.

The following were the dealers' quotations at Winona, Grimsby, Beamsville, etc., for the week beginning Aug. 19th.

PEACHES		1 BASK. 10 BASK. 20 BASK.
Triumph	} No. 1, 45c....42c....40c	
and Hales		
Triumph	} No. 2, 30c....27c....25c	
and Hales		
Leamington		.....60c....57c....55c
PLUMS		1 BASK. 10 BASK. 20 BASK.
Fancy Blue and Red		.. 40c....37c....35c
Medium		
Fancy Blue and Red		..30c....27c....25c
PEARS		1 BASK. 10 BASK. 20 BASK.
Bartlett No. 1,		.. 50c....45c....40c
Bartlett No. 2,		.. 40c....35c....
Common		.....30c....25c....
Tomatoes		.....25c....24c....23c
—W.W.		

Irrigation Convention

The fourth annual convention of the Western Canada Irrigation Association was held at Kamloops, B.C., during August, lasting three days. Nearly every section of Saskatchewan, Alberta and British Columbia was represented, there being 119 delegates.

Premier McBride, of British Columbia, stated that a steektaking of the water resources of the province was under way and that hereafter it would have to be shown that they were in use before a claim to a water right would be given. All development work for power purposes will have to be done with the approval of the government and the rates will be fixed by order in council. Martin Burrell, M.P., contended that the government was as capable of operating public utilities as efficiently as private owners.

Papers were read by A. E. Meighen, the engineer in charge of the Fruitland irrigation system, and by Mr. A. E. Ashcroft, of Coldstream. Other speakers were James White, Secretary of the Conservation Commission, and Hon. Duncan Marshall, Minister of Agriculture for Alberta.

A resolution was passed requesting the British Columbia government to take steps towards securing the better conservation and control of the sources of water supply in those districts in which governmental action would clearly make for a fuller supply of water and its more equitable distribution, and further that the government be asked to assist by guaranteeing the bonds of municipalities or companies in those districts where otherwise large tracts of land must remain unproductive for lack of adequate irrigation systems.

The Dominion and provincial governments were urged to investigate as speedily as possible for selection and reservation all water sites and to forestall as far as possible the creation of vested interests.

IRIS GERMANICA

A very choice collection of the best named kinds
Mixed Iris, \$1.00 per hundred.

PAEONY—FESTIVA MAXIMA

The Queen of Whites, and other named varieties
Small Divisions, 25 cents.

H. P. VAN WAGNER
STONE CREEK, ONT.

The Canadian Horticulturist

Contents for October

Driveway to an Ontario Home *Cover*

Fruits and Fruit Growing

Ontario Apple Industry	<i>G. F. Marsh</i>	227
Fall Treatment of Grape Vines	<i>W. M. Robson</i>	229
The Cider Industry	<i>L. Muenier</i>	229
Benefits of Spraying Demonstrated		229
Thimbleberry Culture	<i>John Wilson</i>	230
Packing of Ontario Fruit		231

Flower Garden and Lawn

Familiar Autumn Flowers	<i>H. J. Snelgrove</i>	232
Flower Gardens of England	<i>Mrs. Allan Baines</i>	233
Hints about House Plants	<i>Wm. Hunt</i>	234
Winter Flowering Bulbs	<i>Wm. Hunt</i>	235
Cultivation of Hyacinths and Tulips		235

Vegetables and Market Gardening

Vegetable Problems Discussed		236
The Ginseng Seed Bed	<i>E. A. Russell</i>	239

General

Editorials		238
Ontario Apple Prices		239
Fruit at the Canadian National		239
Ontario Horticultural Exhibition		240
Niagara District Horticultural Exhibition		241
Ontario Peaches in England		241
Quebec Pomological Society		242
Notes from The Provinces		224

INDEX TO ADVERTISEMENTS.

Bank	242
Books	249
Boxes, Baskets and Barrels	240
Building Material	249
Cameras	249
Classified Advertisements	vi
Cold Storage Rooms	242
Commission Merchants	240, 241, 242, 248, 249
Exhibitions	ii, 243
Fencing	246
Fertilizers	ii
Flower Pots	249
Fruit Lands	vi
Furnaces	249, 250
Greenhouse Material	ii, iv
Growers' Supplies	244
Implements and Tools	vi
Insecticides	243, 246
Landscape Architecture	246
Mail Order House	v
Magazines	245
Nursery Stock	iv, 239, 240, 243, 244, 246, 247, 249, v
Pianos	217, 248
Rubber Stamps and Stencils	249
Safes	246
Schools and Colleges	241, 248
Seeds and Bulbs	241, 242, 213, 247
Steamship Companies	vii
Stove Polish	248
Telephones	viii
Tree Protectors	vii
Veterinary Remedies	vi
Washing Machines	248

Talks on Advertising No. 1

A full page advertisement in The Ladies' Home Journal costs \$5,000. A full page in The Saturday Evening Post, published by the same company, costs only \$3,000. Yet the circulation of The Saturday Evening Post is as large or possibly larger than The Ladies' Home Journal. Why is advertising space in one paper worth nearly twice as much as in the other?

In determining the value of advertising space in a publication, there are several things to be taken into consideration. The frequency of publication is an important factor. In the case of the two papers mentioned, one is (or was until recently) published monthly; the other weekly. A paper which reaches its readers only once a month is read much more carefully than a paper which comes more than four times as often. A weekly paper must be read as soon as received, or the next issue comes along, and it is old. A monthly paper is *read*, not glanced through. The best articles are read again, and then the copy is kept for future reference. How often do you see a member of your family going over a pile of old Saturday Evening Posts, dating back for a couple of years? Yet this is a familiar sight in the case of The Ladies' Home Journal, and of all monthly publications. The fact that The Canadian Horticulturist is a monthly publication is one reason why its advertising columns are so valuable to those who use them.

Character of Circulation

has much to do in determining the value of advertising space in a publication. Take the case of the same two publications. The Ladies' Home Journal is essentially a home publication. The copy may be purchased at a news stand or from a newsboy, but it is taken home to be read. The general character of the articles published are designed to teach something, rather than to please for the moment. The Saturday Evening Post has a larger percentage of circulation among the general public and in many cases it is simply purchased to pass the time for an hour or two, and is then discarded.

The Canadian Horticulturist is designed to teach its readers in regard to the principles and practices of horticulture. Its readers are those who want to learn something from its columns, who read the paper in their homes, and see who advertises in its columns. They are a well to do class, and their trade is worth while to advertisers who seek to attract it by using the advertising columns of this paper.

Subscribers who chance to miss their copy of The Canadian Horticulturist, when asking that another be sent, frequently state that they are preserving their copies, and have a complete file dating back for a number of years. The paper supplies something in the reading line they want, and they feel that they do not like to throw away or destroy a single copy. They look upon The Canadian Horticulturist as a friend who comes each month giving suggestions and instructions as to how they can get the most out of their fruit farms or gardens. When the readers of a publication have confidence in its reading columns, they will have confidence in the firms which use its advertising columns. That firms using advertising space in The Canadian Horticulturist have the confidence of its readers and are securing satisfactory results, is indicated by the fact that the advertising patronage of the magazine has increased several hundred per cent. during the past five years, and that this year the advertising carried and the number of advertisers is greater than ever before. Firms not advertising in The Canadian Horticulturist would do well to investigate its merits.



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¶ A Complete Stock of thoroughly hardy, healthy, well-rooted specimens of Fruit, Ornamental and Evergreen Trees and Shrubs. Specialties—Large Specimen Trees, Spruce, Pines, &c. for Park and Street Planting.

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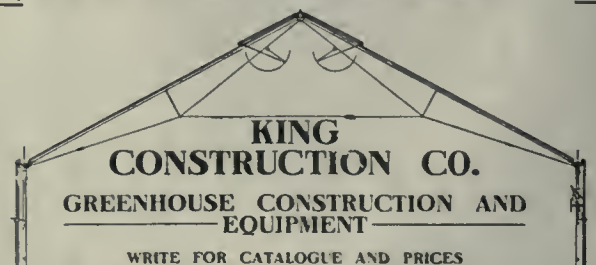
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Are the most

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Greenhouses that can be constructed. Years of actual test and the experience of large and small growers have gained for our houses the reputation of being the most satisfactory ever erected for vegetable or flower growing, or private conservatories.



¶ Plans prepared for complete plants and equipment at a moderate cost: all or part of the necessary materials supplied and houses of any size erected under our personal supervision if desired by builder.

¶ Write and tell us the kind of houses you desire to erect or ask for question blank and we will mail you our descriptive bulletin by return of mail.

THE KING CONSTRUCTION CO.

248 Wellington St. West TORONTO, ONT.

Mention The Canadian Horticulturist when writing.

The Canadian Horticulturist

Vol. XXXIII

OCTOBER, 1910

No. 10

Ontario Apple Industry Should Be Revived

G. F. Marsh, Clarksburg, Ontario

THE statement by Prof. J. W. Crow, of the Guelph Agricultural College, published in the September issue of THE CANADIAN HORTICULTURIST, that for fifteen years the apple industry in Ontario has been declining and that it is still on the decline requires serious attention. Coming as it does from an official of the government, it proves the apple industry of the province to be in a critical position.

This is a discouraging admission after all the time and money that has been expended in building up the business. All who are interested should examine the causes given for this decline and if possible find a remedy, for if the same ratio of decline is maintained for another fifteen years, there will be no apple industry to conserve.

INSECTS AND DISEASE

The first reason given is the prevalence of insects and fungous diseases. These are very evident, but we have no more trouble of this kind than our neighbors to the south of the line, who continue to raise profitable crops of fruit by thorough spraying, pruning, and cultivation. This being the case, why have not our Canadian farmers been educated to the value of this work? Who is to blame for the fact that insects and fungous diseases have been allowed to destroy this trade? Surely the Ontario farmer is not deficient in intelligence as compared with the New York farmer. Then his unenlightened condition must be due either to the inefficiency of his teachers, lack of money or the neglect of the government to supply a sufficient number of teachers to do the work thoroughly. This is a pertinent question, for we either want better men or more of them or more money to carry on the work.

WINTER INJURY

The second reason given is winter injury, caused by our cold climate. That our climate is severe we all know, but I doubt that the loss from this cause is as great as supposed, especially if we deduct the damage done to trees, which are in a weakened condition from fungous and insect injuries by lack of proper care. Here again lack of education is shown, as it is generally the man who thinks that he is taking good care of his orchard by stimulating the growth with farm manure, a highly nitrogenous fertilizer, thus causing a soft, rank growth, who loses

his trees by winter frost. This loss can be charged against lack of knowledge on the part of the farmer which leads him to feed his trees an unbalanced plant food ration. It indicates also a lack of familiarity with the hardiness of the different varieties of trees and their suitability for this location.

We know, of course, that it is impossible to buy trees with a guarantee worth the paper it is written on that they are true to name. It has happened not in-

this source of injury to the industry is still needed.

THE UNSCRUPULOUS BUYER

The third reason given by Prof. Crow for the decline is the unscrupulous buyer. Quite true, but why has not the Ontario government gone after the unscrupulous buyer? If it had expended a small part of the energy in this direction that the Dominion Government has spent looking for the little apples put in the middle of the barrel by the farmer, developing markets and providing apple quotations, the apple industry might tell a different tale.

Owing to the perishable value of the crop and their inability to make sales, farmers have to take what they can get at the time for their apples. They cannot hold them for higher prices as they can wheat or oats. The work, therefore, of assisting them to form more cooperative associations should be pressed more vigorously.

Reliable buyers sometimes have a way of apportioning off certain territory among themselves. One will not bid higher than another. If an outside buyer comes in, he is either paid sufficient to lead him to get his apples elsewhere or for some other reason he makes up his mind to leave the territory, turning his apples over to the local dealer. Is it any wonder that with these lessons the farmer decides that it will pay him better in the end to produce staples, such as wheat, oats or butter? Why is it that the government has not stepped in and when the dealers refused to pay proper prices, arranged to have the apples taken off the farmer's hands and disposed of in some such way as the New York Central Railway has commenced to do? The farmer delivers the fruit to the car and the railway attends to the rest and sees that the apples reach the proper market and that the proceeds are remitted. Why has not the government made it its business to see that the man with a small quantity of fruit is assisted to dispose of his good apples to advantage either through cooperation or by vigorous search for and prosecution of dishonest buyers?

These are questions that should be answered, and I trust that the readers of THE CANADIAN HORTICULTURIST will see that they are answered by pressing for action which



Picking a Ben Davis Apple Tree, Tillsonburg, Ont.

Packing Gang of J. C. Harris, Ingersoll.

frequently that a man, after spending time to learn the most suitable varieties for his locality and buying from a supposedly reliable nursery firm, has found after he has cared for them for years, that they are not only worthless varieties, but that they are tender as well. By the time these trees commence to bear, they are so injured by frost they are not worth grafting. Under such conditions a man may well lose heart in the apple business. I have an example of this unscrupulous substitution in our own orchard, where, after buying what we thought were standard varieties, we found that we had all the varieties of size and color known, and also a large number of unknown varieties. A solution of

will revive the apple industry. The article in question contains the most important admission of the failure of an important industry ever made by a person connected with a government. Now in the name of common sense, either put the business on a paying basis and stop the decline or stop all promotion of the industry, for if it is a legitimate decline, there is no use throwing good money after bad. If, on the other hand, the business is worth saving, there is no use letting things drift. Instead, we should all work together to revive it, and in this effort the government should lead.

A LARGE REVENUE

There are estimated to be seven million bearing trees in Ontario. A good authority, Mr. E. D. Smith, puts the yield at a half a barrel a tree, which at two dollars a barrel would be just seven million dollars.

In New York State they estimate the net returns of a bearing tree at \$5 to \$10.00 a year. If we take a middle course and say \$7.50 we would have the enormous sum of \$52,500,000—\$45,500,000 more than the present return. Surely the possibility of a yearly increase of \$45,500,000 or half that should lead us to strive to renovate our orchards, and be a safe business investment for the expenditure of public money.

WHAT MIGHT BE DONE

The Ontario Government, if it sincerely desires to bring about an improvement in existing conditions, should find it a simple matter to devise methods of doing so. Among others I might suggest the following: First, increase the number of demonstration orchards.

The present system of giving practical demonstrations of pruning, spraying and cultivation as it has been conducted this year in the Georgian Bay District is good, but there is not a sufficient number of these orchards. One or two will not do for a fruit county. There should be one in every township in the main apple growing districts.

The system of giving supervised orchards, as conducted in Pennsylvania, might be introduced under which the department would send a man free of cost to any farmer who made application, to show him how to spray, prune and cultivate. The same man could call again at the orchard two or three times or oftener during the season. This is a thoroughly practical method of aiding the fruit grower, and as the expense is light, there is no limit to the number of orchards that might then be assisted. Owners of neighboring orchards would receive an indirect benefit from the object lessons afforded by the supervised orchards. This has been the case in Pennsylvania.

EDUCATIONAL EXHIBITS

We could follow the example of Cornell University and the New York De-

partment of Agriculture and have a number of men, not only at the leading exhibitions but also at small local fairs with a full exhibit of specimens of injurious insects, fungous diseases, samples of spray materials and sprayed and unsprayed fruit which would show the profit to be derived from this work. These men should be able to give advice on all questions in fruit growing, both practical and technical.

ORCHARD SURVEYS

There should be a soil and orchard survey made so that we would know just which varieties are adapted to certain soils, and where these soils are situated. Records of temperature and loss from frost for periods of years should be started and maintained. Thus a man wishing to plant an orchard would have definite information of great value and thus would not have to go into the business blindly as at present.

We cannot do anything to change the climate and to prevent winter injury, but on occasion we might do as they have in the west, where fires and smudge pots have been used very satisfactorily to prevent loss from early frosts.

EDUCATION NEEDED

Much could be done by proper education to show the danger of stimulating a rank growth of wood by stable manure or other nitrogenous fertilizers without balancing it up with mineral matter to ripen the wood. The value of cover crops could be shown. Had the peach growers in Essex and Kent had a proper understanding of this point they could

have prevented the disastrous losses of a few years ago.

All tree salesmen might be compelled to show that they were working for a reliable firm and if necessary be licensed. One of the chief causes of discouragement among fruit growers has been the travelling agent, who picked his stock up wherever he could get it the cheapest, and then labeled the trees with the names of standard hardy varieties and sold them to the confiding public. Instead of leaving each farmer to take action in such cases the government might well accept the responsibility. Were salesmen licensed this would be a comparatively simple matter.

AID THE ASSOCIATIONS

The department should increase its aid to cooperative fruit shipping associations. It could keep the fruit growers informed as to the prices of fruit. At fairs, conventions and fruit meetings practical demonstrations in packing and grading fruit might be given.

The department should compel apple dealers to put up a reasonable guarantee that the apples purchased would be paid for.

The duty of the fruit department has not been fulfilled until it can no longer be said that the grower with a small quantity of good fruit finds it impossible to market his fruit to advantage.

Some may contend that the plans outlined would take an enormous amount of money. Well, what if they would? Would not the produce of seven million bearing apple trees and seven million more which would soon be bearing,



A Portion of the Ontario Fruit Exhibit at the Canadian National Exhibition, Toronto, Ont.

justify the expense? There is no reason why our declining apple industry cannot be made a great source of revenue to the province.

Fall Treatment of Grape Vines

W. M. Robson, Lindsay, Ont.

In our locality, which is outside the zone of commercial grape growing for profit, we have to resort to the best conceivable appliances to achieve any desirable results. As our average winter here is both long and severe, we have to lay down our vines, stems and branches and cover them carefully over with earth, as a protection from intense frost. This work is done during the early part of November.

After the fruit has been gathered, and the wood sufficiently ripened, the vines are carefully and skilfully pruned. In this work the care and judgment of the vine dresser will reflect itself in the size and quality of the fruit the following season. Probably this is the most important art to master in grape culture. Often it is done very indifferently, regardless of method or system. To command any degree of success in this or any other work, you must have the inspiration of a Dean Holt, with love for it, and an admiration for the product. The vines being securely covered for the winter they remain so till about the first of May, when we commence to uncover them.

The Cider Industry*

Prof. L. Meunier, Paris, France

Only sound apples are saleable. For that reason one-third of the crop and sometimes one-half remains every year in the orchard unpurchased. Canadian growers in this way lose millions of barrels.

It is possible to utilize them in the following manner: First, as feed for cattle, second for drying, third for canning, and fourth, for cider making. Let us examine and compare the methods.

If they are used as feed for cattle, sixty pounds of apples are needed to make one pound of flesh. If you estimate it at twelve cents a pound, ten pounds of fruit give two cents.

More than ten pounds of green fruit are required to make two pounds of evaporated apples for which one can obtain five cents a pound. The cost of the evaporation is (for a farmer's industry) five cents for ten pounds of green fruit. Consequently, in this way, these ten pounds give about five cents.

Well preserved apples in cans may be sold at two and a half cents a pound. At this rate, all being paid, we can make very little more profit than a cent a pound

*A summary of an address given at the meeting of the Pomological and Fruit Growing Society of the Province of Quebec at Sherbrooke, August 31st.



Fruit Packing in a Wealthy Orchard, Agricultural Institute, Oka, Que.

of green fruit. Unfortunately, that applies only to manufacturing on a large scale, and it cannot turn to good account, worm-eaten, scabby, or slightly rotten fruit.

CIDER MAKING

Apples of any description suit for cider making. With ten pounds of fruit one can make one gallon of pure cider, the price of which being eighteen cents at least, and the cost about six cents, it gives twelve cents a gallon, that is seven and a half cents for ten pounds of green fruit. And the pressed apples can fatten nearly as many hogs as the apples themselves; the greatest part of the nitrogen remaining in the pomace (pressed apples). Thus cider making gives at least eight and a half cents for ten pounds of green fruit.

Therefore ten pounds of fruit make, by: Feeding cattle two cents, drying five cents, canning ten cents, cider making eight cents.

More cider would certainly be made in Canada if it were generally known how simple the process is. One needs only a cider mill to crush the apples, a cider press to extract the juice, and casks in which to pour it, and also some knowledge of the rules of fermentation.

CONCLUSIONS

Can only your sound apples which are too ripe for shipping. With the remainder make cider. From these apples as good (some claim better) cider can be made as that from perfectly sound apples. Fatten hogs with the pomace. Thus doing you will increase your returns by one-half and often more.

Benefits of Spraying Demonstrated

IN view of the great damage being inflicted on the fruit industry in Ontario by insect pests, particularly the Codling Moth, information brought out at a meeting held recently in the orchard of Mr. M. C. Smith, at Burlington, Ont., is of special interest. About one hundred growers from the district were present as well as leading authorities on fruit growing from all parts of the province.

Mr. Smith has had charge of the orchard for five years. During that period as a result of systematic pruning and spraying, the orchard has given exceptional results. While the output of the Canadian apple markets contains a total of about only 20 per cent. of the first grade of apples, the authorities at Mr. Smith's farm estimated that it would yield 80 per cent. of No. 1 apples. Mr.

Smith attributed his success to the spraying he has done since he obtained the orchard. The orchard comprises about eight acres. The guests succeeded in finding only one wormy apple.

A SPLENDID CROP

Prof. J. W. Crow, of the O. A. C., Guelph, said that the crop in the orchard was the best he had seen during the year. The fruit growers of Ontario did not get the quantity and quality of fruit that they should. He had found out that thinning apples brought out a great deal more first-class fruit. By taking off a fair proportion of the apples on a tree in July, and making them normally and uniformly thin the quality was greatly improved, and strange as it might seem, the quantity also was equal to, if not greater than the yield from an unthinned orchard. The

trouble was the growers did not realize what was possible yet by thinning.

THE QUESTION OF FERTILIZERS

It would take systematic efforts to prove which fertilizer was the best. Mr. Smith's orchard had received unusual treatment in the way of fertilizer, having received potash five years ago and fertilizer and manure alternately since then, and it has yielded phenomenally. Although Mr. Smith had used more fertilizer than many other dealers, he had a greater crop than any of them. Proof seemed conclusive that these two things went together. The orchard they had just been through was over fifty years old, and had had only one big crop in the memory of men who had known it for years. That was in 1896, when the crops all over Canada were very large, but for fifteen years it had had no crop to speak of.

Regular pruning was necessary and advisable, such as had been done in Mr. Smith's orchard. A feature he had noticed was that Mr. Smith had not cut off any suckers, but had let them grow to fill in the lower part of the trees, and the result was that the suckers were all bearing fruit. The natural conclusion, based on the results in the Burlington orchard and others, was that the growers were not pruning, fertilizing and cultivating as they might. He estimated that the orchard contained eighty per cent. of No. one apples, and few had ever seen better than that.

BIG PRICES

Prof. Crow said that he knew of a case this year where a prominent dealer had paid \$3.50 and \$4 a barrel for No. one apples, and this dealer told him fifty per cent. of that was the direct result of the fruit having been sprayed. On the Northwest markets Ontario dealers were getting \$2.50 to \$2.75 for Duchess apples, per bushel. That figured up to \$7 or \$8 a barrel, a price not dreamed of by many dealers, yet it was obtainable for the right quality of fruit. He believed in boxing all first class fruit instead of putting it up in barrels, and also wrapping the best of it.

THE DEMONSTRATION ORCHARDS

The work that has been done this year in the demonstration orchards in the Georgian Bay district by the Ontario Government, was described by W. F. Kydd, of Simcoe, Ont. Mr. Kydd stated that they had selected the six worst orchards in Simcoe, which was the worst district for apples this year in the province. The trees were so high and thick in the orchards that he and his assistants had to prune their way into them. The trees had been treated with the regular lime and sulphur spray. The yield was seventy-five per cent. number one apples, and for years it had been nearer one per cent. From one small orchard twenty barrels of number one apples had been picked,



Packing Musk Melons on the Farm of J. L. Hilborn, Leamington, Ont.

Mr. Hilborn grows six to ten acres of musk melons each year. He has tried many different styles of packages and has found that the slatted crate, 12 x 12 x 20 inches, gives the best results.

two barrels of number two, and one barrel of culls.

THE CODLING MOTH

Mr. A. W. Peart, of Burlington, said that in Burlington and the lake valley, the codling moth was about as bad as any place else, and, of late years, it has been increasingly prevalent. That Mr. Smith had banished it from his orchard spoke volumes for his methods. Spraying was one of the most important factors in apple production. Mr. Smith had sprayed his orchard at a cost of sixty cents a tree. He had given four sprayings, the trees being mostly large, fifty years old, and bearing a crop of, perhaps, five or six barrels each. That was within the reach of all.

WHEN TO SPRAY

Mr. L. Caesar, of the O. A. C., Guelph, said that just before the buds opened in the spring was when the first spraying should be done. The second spraying should be applied just before the blossoms burst, and the third just after they fell. A fourth could be given later, but it was not as necessary as the others. He had found that the lime and sulphur mixture was the best and, mixed with arsenate of lead, in the proper proportions, it was efficient for all purposes. Pears and crabapple trees were liable to suffer burning from that mixture, but it would not harm the apple trees in the least.

THE SPRAY USED

Upon request, Mr. M. C. Smith, the owner of the orchard, described his spraying operations. He had sprayed with Niagara Lime-Sulphur and Arsenate of Lead, and had used from five to fifteen gallons of material to a tree, and it had cost him about sixty cents a tree for the spraying. As an indication of the value of proper spraying and caring for an orchard, he stated that there was one just

across the road from his place which had not been sprayed. The trees were younger and better than his, yet he would defy anybody to get an apple there that was without a worm or a spot of some disease. He used a coarse spray and strong pressure, about one hundred and eighty pounds, and sprayed at the rate of 1,500 gallons a day.

THE SPEAKERS

Other speakers were Fruit Inspector Carey, P. W. Hodgetts, Toronto; Frank Dempsey, of Prince Edward County; W. H. Bunting, St. Catharines; R. McKenney, Essex, and C. Mitchell, of Georgian Bay.

Pointers on Thimbleberry Culture

John Wilson, Jr., Oakville, Ont.

A light, dry, warm soil and plenty of manure are the essentials to success with a crop of thimble berries. On a cold soil, the berries grow small and do not give the yields. A limited district only of the country is adaptable to the culture of thimble berries. And only a limited area of any one farm ordinarily will produce them to advantage, hence there is always a very fair market for them once the crop is ready to be picked. A fair yield is 3,500 quarts to the acre. Oftentimes the yield is higher.

Since the lightest, sandiest soil seems to suit the berries best, it follows that this soil must be liberally supplied with manure. The plantation should be manured about every year, at least every other year. I would prefer to give a light application every year if the manure was available.

As soon as the canes are through bearing for the year, even before, if the market has gone bad, we go through the

plantation and take out all old wood. This allows all strength and growth to go into the new wood for the crop of the following year. The soil is kept cultivated throughout the summer and the rows plowed up too during the fall.

The Kittatinny and the Snyder are favorite varieties. They are the best shippers. The Kittatinny is a little tender and is inclined to winter-kill. The Snyder is very hardy. It is a good shipper

and may be sent anywhere. The Erie is a magnificent berry, both for flavor and size. It is a softer berry, however, and is very tender, killing out badly in winter and hence only cropping about every other year. I much prefer the Snyder. It beats the other varieties with us almost every year. We are trying the Mercereau. It is of good quality and size but is going to be a very shy bearer.

The Packing of Ontario Fruit

By "Weary Worm," Winona

THE marketing end of the fruit business is a very live and burning question to-day in Ontario generally, and in the Niagara District in particular. As far as apples are concerned, much has been done throughout Ontario in the way of improvement by the various cooperative associations that have been formed of late years, even although some of them are far from perfect yet. Dominion Inspector Carey states that a great improvement in the packing of apples has taken place during the last few years, and that a large proportion of the packers are now endeavoring to do good work.

BOX PACKING MORE POPULAR

Box packing of fancy fruit—especially for long distance shipments—is growing in favor with the consuming public, even although the dealers in certain markets still prefer the barrel. As regards our tender fruits, such as peaches, plums, etc., some improvement has also taken place, but a great deal yet remains

to be done. Some of the large dealers, and the large private growers, are doing something along this line, but the most is being done by cooperative associations.

The founder of the box system of packing apples in Ontario was, I believe, Mr. George E. Fisher, of Burlington, and the Burlington Association, of which he is a member, has done good work in box packing successfully, the tender fruits as well as apples. Mr. Biggs, of Burlington, is also doing good work in this matter. Recently some very good work in this direction has been done by such organizations as the St. Catharines Cold Storage Company, and the Ontario and Western Cooperative Company.

As far as the Western market is concerned, Ontario shippers must do better grading of their fruit if they wish to compete successfully against British Columbia and American competition, and to keep for their own that large share of the western fruit trade to which they

ought to be justly entitled. In the matter of our tender fruits the St. Catharines Cold Storage Company has been packing peaches, plums, etc., for some time in boxes, and have some very well trained packers on their staff.

The Ontario and Western Company made a wise move this summer when they obtained three expert packers—one from Michigan, one from Georgia, and one from Virginia—to give scientific and practical advice and instruction to the company's packers, and to put them up to all the latest wrinkles employed in other peach growing districts. They have had these packers at work for some time now, and one of the chief officers of the company informs me that good results have followed, and that he expects even better results next season from the instructions received from these experts. A large number of this company are having their apples packed in boxes this season.

Some of the shippers inform me that in sending tender fruits to the West, fancy packages are still somewhat hard to sell, the people there objecting to pay the extra price for fruit put up in such a way. When shipping cars of fruit on order plenty of orders are received for baskets, and comparatively few for cases or other fancy packages. Be that as it may, it seems to me that the public there, as they grow in wealth, will more and more demand the better class of fruit, and that the prejudice of the dealers and retailers against the change will gradually disappear.

THE PEACHES FOR ENGLAND

I have recently had the privilege of inspecting the packing, at the St. Catharines Cold Storage Company's packing house, of one of the shipments of peaches for England. Mr. Dobson, of Hamilton, who has an extensive orchard at Jordan Harbor, and the St. Catharines Cold Storage Co., are sending several considerable shipments of peaches to England, under the superintendence of the Dominion and Ontario Governments. The shippers are guaranteed a certain price for this fruit by the Government. Mr. Dobson's first shipment of early Crawfords, made on the 10th of September has arrived in London in good condition, and has excited favorable comment there. The box adopted is similar to the South African box, and is 18 inches long, 11 wide, and 3½ deep. Wood wool made from the aspen willow is used for packing material, and a good layer of this is placed at the bottom, top and sides of the box. Every peach is first wrapped in paper, then in wool, and carefully fitted to its place; the boxes then are nailed up, and every three boxes are placed on top of one another and nailed top and bottom together, thus making a very handy crate weighing



An Exhibit of British Columbia Fruit at the Canadian National Exhibition, which was Much Admired

about 25 pounds. Each of the boxes weighs slightly under nine pounds. Girls are employed to do the packing. They pack from 60 to 100 boxes in a day in this manner.

Each box contains from 20 to 25 peaches, the number contained being stamped on the outside of the box. The ends have an attractive label pasted on, entitled "Canadian Grown Peaches." The paper in which the peaches are wrapped is also stamped "St. Catharines Cold Storage Co., Ontario, Canada."

LOADING THE CARS

Great care is taken in preparing and loading the cars. The bottom and sides of each car are slatted, and the crated boxes are placed in tiers seven high and six wide, and a space of about three inches left between each tier, and over every tier narrow strips are run across the car to keep them from moving. All these precautions are taken to ensure good ventilation between the packages. A car will hold almost 1,200 of these boxes, or 400 crates; but the shipment I am describing only contained 700.

The car is iced 12 hours before the fruit is placed in it, and the fruit itself is also pre-cooled. On the previous shipment to Montreal the temperature of the car never rose above 45°. A thermometer is also used on board ship, and the temperature is kept well down till within a day or two of landing, when it is allowed to gradually rise to the temperature of the outer air to avoid the condensation of moisture upon the fruit.

In shipping fruit long distances by car from California and elsewhere, pre-cooling of the fruit and the pre-icing of cars have been found to be of vital importance. The St. Catharines Company is wisely adopting similar methods.

This package would seem to me to be a very good one for the western trade. The St. Catharines Cold Storage Co. are, however, using a larger box for their trade, holding about 60 peaches, and weighing about 26 pounds. These boxes are in my opinion far superior to the Georgia carrier crate.

Mr. Dobson, the St. Catharines Cold Storage Company, and the Government officials already mentioned, are to be highly commended for the thorough and efficient way in which they are handling these shipments of fruit. The peaches are very carefully picked and handled previous to being packed in the boxes, the baskets in which they are picked being lined with excelsior. They are of the Elberta variety and are shipped as soon as they are slightly colored.

If fruit trees are kept well pruned they make stronger growth, distribute the fruit more evenly over the trees, the trees are more shapely, and less fruit is likely to be knocked off by the wind and the fruit is more easily picked.

Familiar Autumn Flowers*

Major H. J. Snelgrove, M.A., Ph. D., Toronto

THE Golden Rod family, with its thirty-odd members, "all well defined," gild field and glen, on hillside and unfrequented wayside. By an expression of the choice of the people of the United States not many years ago, the Golden Rod was selected by an overwhelming majority as the representative American wild flower.

The botanical name of the cultivated aster, is from two Greek words, meaning beautiful crown. This popular flower comes to us from China and Japan. The Victoria is an old favorite, whose flowers in a great variety of colors, are soft-rayed and have a reflex curve. Truffaut's aster is incurved, and has a large range of colors. There is a quilled aster of German fame which has distinct needles. The Triumph is a variety with brilliant red flowers. One of the most beautiful newer varieties is the Comet. This is a flower with reflex curling rays of a singularly translucent quality of color. The white ones are particularly delicate and altogether lovely. There are many new varieties advertised in the florists' catalogues, but it will be found that they do not diverge greatly from the types above mentioned.

The garden Petunia gets its name from "petun," the aboriginal name for tobacco. It belongs to the night shade family, and is a near relative of common tobacco. The finest of all the petunias are called Giants of California. They are hybrids raised by a lady whose health demanded outdoor exercise in a warm, sunny climate. These flowers measure four or five inches across and possess exceedingly brilliant hues.

The Larkspur (Delphinium) comes variously from Europe, Siberia and China. It has a lovely spear of deep blue or purple or light ultramarine color, which gracefully waves to and fro in every passing zephyr.

The old fashioned hollyhock still holds its place in the modern garden, but the old single variety is being displaced by a double one which is as full as a Paul Neyron rose and quite as beautiful.

The Gladiolus has been much improved by hybridization so that the old red and pink varieties have been supplanted by an infinite number of brilliant-hued flowers, the finest of which have been produced by Mr. H. H. Groff, the eminent Canadian horticulturist of Simcoe, Ont. Everyone who has seen them can testify to their matchless beauty.

Phlox is the Greek name for fire, and, although all the phloxes are not fiery hued, there are many of them red enough to deserve the name. They are North American plants. The annual variety,

Phlox Drummondii, comes from Texas originally. The range of color in the Drummond phlox is extraordinary. There are cream, white, pale yellow, pale salmon pink, deep pink, crimson pink, magenta, purple, lilac, pure red and crimson. They begin to flower in June and about the last of October Jack Frost snatches the last lingering blossom. Phlox decussata, the perennial variety, is not quite as brilliant in coloring, but it is refined and delicate and has the advantage of permanency. The best hues are crimson, magenta and pink, with variations. The nurseries are offering long lists of named varieties, but the nomenclature will be found unreliable. The root of the perennial variety should be divided every second or third year.

The beautiful fringed gentian must ever remain associated with the poet Bryant, who has written such charming lines about it. To him it was the flower of hope which comes

"When shortening days portend
The aged year is near his end"

and with calm eye look through its fringes heavenward; and he thought it was as blue as the sky. But the blue of the flower is not as true as its expression of hopeful dependence. There is, indeed, a heavenly peace expressed by every one of its lines. The flower cups are opened and closed according to the brightness or dullness of the day. If a burst of sunshine occurs on a dull day the flower expands in a few minutes. It always closes at night, and it will not open the next day if the sun does not shine.

Nicotiana affinis is a sweet-scented, white-flowered tobacco which blooms in late summer. The peculiarity of this charming flower is that it opens about sunset, emits a faint perfume, and then, when broad daylight returns, looks limp.

A LATE BLOOMER

Cosmos is a beautiful white (or pale pink) annual which closely resembles coreopsis or the single dahlia in form and blooms in autumn. This dainty flower comes to us from Mexico and grows wild there as well as in Texas. The variety called Pearl is extensively cultivated by professional florists and is seen in great luxuriant clusters in their shop windows in the large cities. The Texan ladies who come north wonder why we value a flower which is a common weed in their native state. For us it is the last flower of autumn, excepting the chrysanthemum.

CHRYSANTHEMUMS

The chrysanthemum is an Oriental flower for which we are indebted to China and Japan. Indirectly some of the

*Continued from last issue.



The Famous Floral Clock at Teignmouth, England. Read Adjoining Article.

smaller varieties come from England and France. But the florists have taken such complete possession of this popular flower—their hothouse blooms being perfectly huge as well as gorgeous in color—that our garden varieties suffer by comparison.

The chrysanthemum family is immense, numbering over four hundred distinct varieties. This number is being constantly added to by newer hybrids. The chrysanthemum is indeed the last and most beautiful autumn flower of all Flora's train. Whatever we may say in

praise of the rose, we must acknowledge the lovely Golden Flower another Queen—the Queen of Autumn.

When the summer flowers are dead and the birds have flown southward; when the Borean blasts blow down from the icy regions of the North—then comes our Autumn Queen with a wealth of bloom the like of which we never saw in June.

"The fields are stripped, the groves are dumb,

The frost-flowers greet the icy moon—
Then blooms the bright chrysanthemum."

The Flower Gardens of England

Mrs. Allen Baines, Toronto

MY husband and I are on a visit to my native land, and it has occurred to me, as a true and loyal member of the Toronto Horticultural Society that a floral letter from England might be welcome to readers of THE CANADIAN HORTICULTURIST. The flowers have been glorious this year despite—might we not say, in many instances, because—of the cool and showery weather that prevails.

These flowers in this old land seem to grow for their own pleasure. They rejoice to live, to flourish, to give lavishly of their very best in color and bloom. No village street seems too dusty, no cottage garden too small to be chosen for their habitation. And the hearts of their owners respond and give them love for love, and the laborer, the river lock-keeper, the villa resident and the country squire—all alike find pleasure in their cultivation.

I spent a fortnight in my own county, Devonshire. I drove constantly through the little thatched villages in which every cottage wall is a bower of Jasmin, climb-

ing roses and even of scarlet geranium and myrtle, both of which are perennials there, and grow to an enormous size. Beneath the walls and in the tiny gardens white lilies stand in stately masses against a background of blue larkspurs and among standard bushes of hybrid perpetual and tea roses that fill one with delight, and perhaps a little envy, when thoughts present themselves of many hard (and successful) struggles for the life of the former of these at home. Standard roses will, I fancy, always remain an impossibility for us in Ontario.

WE WOULD LIKE TO GO

I would like to take all the readers of THE CANADIAN HORTICULTURIST with me through the little lanes where honeysuckle and wild roses in three or four shades intertwine among the fern-banked hedges—and, still more, I would like to tell them, as they pass the cottages and cosy farms, that many an owner of the humblest of these successfully competes with the high and the rich at country flower shows, because, loving them with all his heart, he has found that "where

there is a will there is a way" to grow them.

Of course, in the towns and seaside resorts and beautiful country seats, the work of the skilled professional is evident. One thing particularly strikes you concerning the gardener here. In his own line, he is generally a well educated and reading man. He does not scorn reading or laugh at chemical fertilizers, or shrug his shoulders in conceited contempt over the scientific treatment of flowers and vegetables. He studies, he makes trials of new things, he notes down failures, and through failures reaches to success, and thus can tell you the reason of his success.

This was particularly exemplified at Teignmouth, a sea resort in Devonshire. The manager of the public gardens there is a working gardener called Symes. Once he was a private gardener. Now he has been chosen to this office and has worked wonders in the gardens and in the show conservatories which are filled with tuberous begonias, fringed, double and single, Schizanthus in every shade, forming compact masses of bloom, Crassula Coccinea and Achimenes.

I am enclosing with this a rather poor photograph of the "Clock bed," designed and kept in order by Mr. Symes himself.

Finding that I was interested, Mr. Symes kindly gave me a good bit of his time and the following description of the clock bed. First, you must know its purpose, which is to indicate the times of high tide. The figures are perfectly clear, the whole bed being a marvel of smooth surface. In the centre there are balanced two large white clock hands which are moved to the hour.



The Marquis Aster

These asters won three first prizes at the Canadian National Exhibition, Toronto. They were lavender pink in color, and were shown by F. H. Hammett, of Toronto.

The following is a plan of the flowers: The small centre is *Mesembyanthemum Cordifolium* and the first ring is *Alternanthera Parenchoides Magnifica*. Next come eight sharp triangles, forming the eight points of the star, the two opposed triangles being of the same plant.

The following four plants compose them: *Alternanthera Amoniae*, *Alternanthera Aurea*, *Crassula Borig*, *Sedum Glaucum*.

The numerals and letters are of *Alternanthera Schmidtii*.

On a groundwork of *Alternanthera Amoniae*, the sixty minutes are marked out in *Klenia*, and the small outer border is *Cerastrum Tomentosum*. Altogether it forms a remarkable, and is a marvellously well kept bed, constantly "groomed" and perfectly flat.

Mr. Symes has brought his *Schizanthus* to a pitch of absolute perfection in habit, compactness and size of flower. I have taken two groups of these and, if the film is successful, I hope to send them to you later, with particulars concerning his cultivation of them. Many horticulturists assail him with questions about them. He does not always answer. I was favored, because, first, he found by a pertinent question of mine, that I understood something about them; second, because I was a Devonshire woman; third, because Canada is my home. To "come from Canada" generally opens English hearts.

One word must be added concerning our steamer trip on the Thames from Oxford. I will not try to paint the natural beauty, nor can I hope that any description of mine will convey the wonder of those gardens that reach to the waters of the old river.

Great magnificent "seats," old and new, hidden among the trees, peeping out from wondrous leafage, little bungalows and thatch-roofed summer cottages all standing amid green velvet of lawns, amid huge beds of standard hybrid perpetual and tea roses in full bloom, and of every form and color, all festooned; everywhere with arch upon arch and bowler and pergola over which crimson ramblers, Dorothy Perkins, Lady Gay and white climbing roses flung their flower-laden sprays in an abandonment of delightful growth, breaking down beneath their own weight and wealth of bloom, while beneath their feet are masses of campanula, linum coccineum and pink and white lavatera which, by the way, grown in masses, are a charming sight. I hope to follow this by a letter on new hybrid geraniums, schizanthus, and other plants.

To secure success with bulbs it is necessary to begin aright by getting sound bulbs of good size. I would warn intending purchasers against buying cheap, under-sized bulbs.—Thomas Jackson, Winnipeg.

Hints About House Plants

Wm. Hunt, O.A.C., Guelph, Ont.

Water pot plants only when they need it, then water them thoroughly. When the soil begins to get dry and powdery on the surface, or when the pot is tapped with the fingers it emits a ringing sound—the plant requires water. Then give sufficient water so that it runs through the bottom of the pot, then withhold water until needed again. Giving a little water every day or at any

the sink. This should be done on fine warm days if possible. Ill-sited or rough-leaved plants, such as the rex begonia, gloxinias, etc., should not be sprinkled over the foliage.

FERTILIZERS

When the pots become full of roots and the soil worn out or exhausted, a little fertilizer can be given. The soil should be moist, not dry or very wet, when fertilizer is applied. There are several good plant foods sold at large seed stores. Sterlingworth Plant Tablets or Bonora are both good. The first costs 10 cents for a small box sufficient for a good collection of plants for the whole winter. Bonora is 25 cents a small tin. This is the best fertilizer for plants that I have tried for amateur work.

Half an ounce of nitrate of soda dissolved in one gallon of water makes a good fertilizer for pot plants. About half a teacupful every two weeks for a plant in a six inch pot will be sufficient. Begonias and coleus must not be given too much fertilizer. Geraniums and chrysanthemums will bear a larger quantity.

INSECT PESTS

The spraying with water will help keep down insect pests, especially if the water is applied to the under side of the leaves. Insect pests increase and thrive best in a dry, warm atmosphere. They do not like moisture. For aphids or green lice, red spider and thrip sulpho-Tobacco Soap is a good remedy. This costs 10 cents a packet at seed stores. Soapy water or a solution of whale oil soap and tobacco water is beneficial.

Smoking the plants is also beneficial. Care must be taken not to burn the plants. Smoking or fumigating with to-



stated interval is not the way to water plants. Use tepid rain water or water that has been exposed to air and sun if possible for a day or two. The water should be just lukewarm about 50 to 60 degrees. Never use ice cold spring water for pot plants in winter.

VENTILATION

Give air from the top of the window or from an adjoining room. Avoid cold draughts of air on plants. Ventilate only on mild, still days. In late fall, early winter, or in spring plants may sometimes be stood out for an hour or two, but the temperature should be at least 65 degrees outside.

MOIST ATMOSPHERE

A moist atmosphere is one of the main essentials to achieve success with plants. Place pans or saucers of water on the heaters or registers. As this evaporates it causes a moisture very beneficial to plants. Saucers of water placed under the plants are beneficial or a steaming kettle or pot on the stove is a great help.

SPRAYING PLANTS

Glaucous or glossy-leaved plants, such as palms, rubber plants, Boston ferns, calla lilies, etc., should have the leaves sponged with clean water once every week, with an occasional spraying at



White Roman Hyacinths

bacco is risky and unpleasant in a dwelling house. Much can be done to help keep down aphids with the smoke from a pipe or cigar if care is taken not to burn the plant. For scale insects wash well with soapy water, using a small brush to remove the scale if necessary. Wash with clear water shortly after using soap solution. Apply the solution to the under side of the leaves.

PLANTS FOR THE WINDOW

The following are lists of good house and window plants:

Geraniums—Single and double flowering; single flowering varieties best for winter.

Geraniums—Ivy-leaved, silver, bronze, and fragrant-leaved varieties are especially effective as window plants.

Begonias—*B. argentea guttata*, *B. manicata aurea*, *B. Otto Hacker*, *B. Thurstonii*, *B. rubra*, *B. Paul Bruant*, and other varieties.

Primulas—*P. sinensis* (Chinese primula), *P. obconica*.

Fuschias—Single and double.

Calla (*Calla Lily*)—*Richardia Ethiopica*.

Chrysanthemums — Pompon and Japanese types.

Impatiens Sultani (Bloom for ever).

Lilium Harrisii (Easter lily)—*Lilium auratum*, *Lilium speciosum rubrum*, etc.

Epiphyllum (Lobster or Christmas cactus).

Tuberous-rooted Begonias — Single and double.

Pelargonium (Lady Washington geranium).

Fresia refracta alba (bulbs with sweet scented flowers).

Valotta purpurea (Scarborough lily), bulb.

Amaryllis in variety (bulbs).

Otaheite Orange (Flowers, fruit and foliage are attractive).

Winter flowering bulbs—Roman and Dutch hyacinths, Narcissi (Daffodil), in variety. Tulips, single and double, early flowering.

FOLIAGE HOUSE PLANTS

The following foliage house plants are suitable for the window as well:

Anthericum vittatum variegatum; *Anthericum picturatum*; *Araucaria excelsa* (Norfolk Island Pine); *Asparagus plumosus*; *Asparagus sprengeri*; *Aspidistra lurida variegata*; *Dracena indivisa* or *Dracena australis* (Cordylina); *Farfugium grande* (Leopard plant).

Ferns — *Nephrolepis Bostoniensis* (Boston fern); *Nephrolepis Whitmani*; *Nephrolepis Scotti* and other varieties.

Ficus elastica (Rubber plant).

Palms—*Kentia Belmoreana*; *Kentia Forsteriani*; *Phoenix rupicola*; *Phoenix reclinata*; *Phoenix dactylifera* (Date palm); *Latania Borbonica* (Fan palm); *Cocos Weddeliana*; *Pandanus Veitchii*; *Sansevieria Zeylanica* (Bow-string hemp plant).

Wintering Flowering Bulbs

Wm. Hunt, O.A.C., Guelph, Ont.

Winter flowering bulbs give good results in winter with very little care. White Roman Hyacinths, Dutch Hyacinth, Narcissi or Daffodils give best results. Purchase the bulbs in October and pot them at once. Put three Roman Hyacinths or Narcissi in a five inch pot (or two Narcissi if bulbs are large), or more bulbs can be placed in a larger pot, pan or shallow box. The box should be about four inches deep and have some half-inch holes bored through the bot-



Madonna Lily

Lilium Candidum, or Hardy Garden Lily.

tom six inches apart for drainage purposes. Put one Dutch Hyacinth in a four inch pot or more in a larger pot. Use a little drainage material.

The top of the bulb should be just below the surface of the soil when potted, and the surface of the soil half an inch below the top of the pot to allow room for watering them. Water the bulbs well directly after potting so as to moisten all the soil. Then place the pots away in a cool, dark cellar or room. The cellar is the best place. The temperature should be about 40 or 45 degrees.

Bury the pots an inch deep in sand, light soil, or coal ashes. Sand is the best. Pack the sand around the pots so as to leave no spaces. Water this covering well if dry. Leave the pots covered in this way for four or five weeks or longer until a good root system has developed. Usually the roots can be seen growing through the aperture in the bottom of the pot.

One of the main points in growing these bulbs well is to secure a good root system before the top growth commences. The pots can then be brought into the window or can be left in the

sand in the cellar until the top growth is about two inches in height. They should be taken out of the sand when the top growth is about the height mentioned. They can be left in a light place in the cellar a little longer if desirable. Introduce the bulbs into light and sunlight by degrees. Keep the bulbs well watered. Bulbs should never be allowed to become dry after they are once potted until through flowering.

The bulbs, especially the Narcissi and Dutch Hyacinth, can be dried off gradually, kept warm until summer, and then planted out in the garden where they may in a year or two flower again. They are seldom of any use to flower indoors the second year. It is best to purchase new bulbs every year. Roman Hyacinths and Paper White Narcissi potted in October can be had in flower by Christmas and New Year. Single Dutch Hyacinths are best for pot culture and can be had in white, red, pink, and blue colors. Good varieties of Narcissi are Von Sion (double), Trumpet Major, Princeps, and Bicolor Empress. The Polyanth Narcissi are also good.

Cultivation of Hyacinths and Tulips

Hyacinths may be planted outside during September and October. To grow them successfully a sunny, open spot should be selected, not in the shade of trees or high walls; a place where the water is stagnant in winter should be carefully avoided and the soil made as porous as possible. If the soil be light or medium, it simply requires to be worked; if heavy, besides deep digging and well-working, the bulbs should be surrounded with some sharp silver sand.

When manure is added, on stiff, heavy soils, horse manure is preferable to cow dung, which may be used on sandy light spots. The manure should be worked a few inches into the soil, thus preventing the bulb itself from coming into contact with it. The beds, thus prepared, are ready for being planted with the bulbs; the soil is taken out to a depth of say three to four inches and the surface made quite level with a rake. The bulbs are then put into the beds four to five inches apart according to their size and gently pressed down; carefully, without overturning the bulbs, the removed soil must then be brought over the bulbs again and after this, planting is finished.

TULIPS

Tulips content themselves with a less rich soil than hyacinths, though a poor one must be avoided. A spot where there is no stagnant water in winter should be selected and the beds so arranged that they get the fullest amount of sunshine in spring. The preparing of the beds is the same as with the hyacinths.

Vegetable Problems Discussed by Practical Growers

THE sixth annual convention of the Ontario Vegetable Growers' Association was held in London, Ont., September 14th. Mr. Thomas Delworth, of Weston, the president, occupied the chair. In his opening remarks Mr. Delworth stated that during the past year the association had taken up two lines of new work. One was the issuing of a monthly crop report which had given general satisfaction. Printed forms were sent out and the members were particularly requested to make their report in accordance with the form. The other particular line of work was the sending of seed to the Government's Experimental Farm at Monteith, New Ontario. The result had been exceedingly satisfactory. The potatoes grown in that district were of a particularly good size, smooth and very good looking, and he thought that in the future Ontario would derive great benefit not only from the fact that the growers in older parts of Ontario would be able to secure a supply of northern grown potatoes, but that as new Ontario became settled its growers would be able to supply the larger cities of Old Ontario with all the potatoes they required and cut out the potatoes that are now being shipped in from New Brunswick.

Mr. Delworth thought that a further amendment should be made to the Seed Control Act making seed merchants responsible for the variety of seed that they sell. He said that it was very hard on market gardeners to plant a supply of onion seed and find after they had matured that they were not true to the variety.

The matter of irrigation was a burning question with the vegetable growers of Ontario and he thought that the Ontario Government should put in a plant at the Jordan Experimental Station to demonstrate the practicability of the overhead system for market gardeners. He also thought that the Dominion Government should amend the statute fixing the weight of certain vegetables. He instanced a case where a gardener near Toronto had sold parsnips at so much per bushel and on delivery the purchaser insisted on sixty pounds to the bushel, making a loss to the gardener of fourteen pounds of parsnips to each measured bushel. He thought that the new standards should be as follows: Parsnips, forty-five pounds; carrots, fifty pounds; beets, fifty pounds; artichokes, fifty-six pounds per bushel. The present rate is sixty pounds a bushel in each instance.

The President's address was ably discussed by C. W. Baker, of London, Ont. He thought that every member of the Association should put his shoulder to

the wheel and back up the president and other officers in their efforts to keep vegetable growing to the front. The convention approved of the president's recommendations, and the executive committee was instructed to bring the question of standard weights to the attention of the government. It was also decided to ask that seventy-five pounds be the lawful weight for a bag of potatoes, so that sugar sacks may be used.

Mr. Kerr, of Ottawa, spoke of the benefits of irrigation. He told of a gardener near Ottawa who had a celery patch on a hill and during the dry weather he irrigated it with water pumped by a wind mill, and the plants that were so watered on the hillside were much better than those in the valley where they did not receive irrigation.

SECRETARY'S REPORT

Mr. J. Lockie Wilson, Secretary, in his annual report, announced that there had been gains in membership and a healthy condition. The St. Thomas branch showed the greatest percentage of gain in membership, 396 per cent. and Tecumseh second with an increase of 100 per cent. Woodstock showed twenty-five per cent. and Toronto twelve per cent. Mr. Wilson had something to say about New Ontario and the potato growing at Monteith and about his trip to the Old Country and the wonderful work that was being done by the farmers in England, France and Belgium. While in England he had seen one hundred acres of strawberries and one thousand acres of potatoes on one farm. It was his opinion that Ontario grown tomatoes could be shipped to English markets with profit and he was going to induce the Ontario Government to make a shipment during the present season. From one of the small Canary Islands there have for years been shipped into England, packed in sawdust and peat, over \$1,000,000 worth of tomatoes annually.

Mr. F. F. Reeves, of Humber Bay, gave a very interesting address on Early Potato Growing, which will be published later.

SMALL FRUITS AND VEGETABLES

Professor Crow, O.A.C., Guelph, dealt with the subject of Small Fruits in Connection with Vegetable Growing. He thought market gardeners could grow small fruits to great advantage, particularly strawberries. Their land being well fertilized, they could secure a heavy yield of berries. He had his doubts as to whether any land could be too rich for strawberries and he thought it would pay to irrigate a strawberry patch during the hot days of the summer months. They had worked 110 feet of strawberries with the Skinner System and it had

given splendid results. He did not think 5,000 boxes of strawberries to the acre would pay, from one acre at the Experimental Farm they had picked 14,000 boxes.

His practice of mulching was to apply a fair covering of manure in the fall. Just put enough to prevent the tops from freezing and to prevent the heaving of the ground. He would apply the balance of the mulch in the spring after the ground was thawed out; then he would put it on good and thick. He preferred something finer than long straw, straw two or three inches long and about two or three inches thick put on between the rows and in the rows as well. The coarse part of the mulch should be raked off in the spring into the spaces between the rows. If the soil was light he would not run the scuffer through in the spring but if the soil was packed it would be well to run the scuffer through, but not too deep.

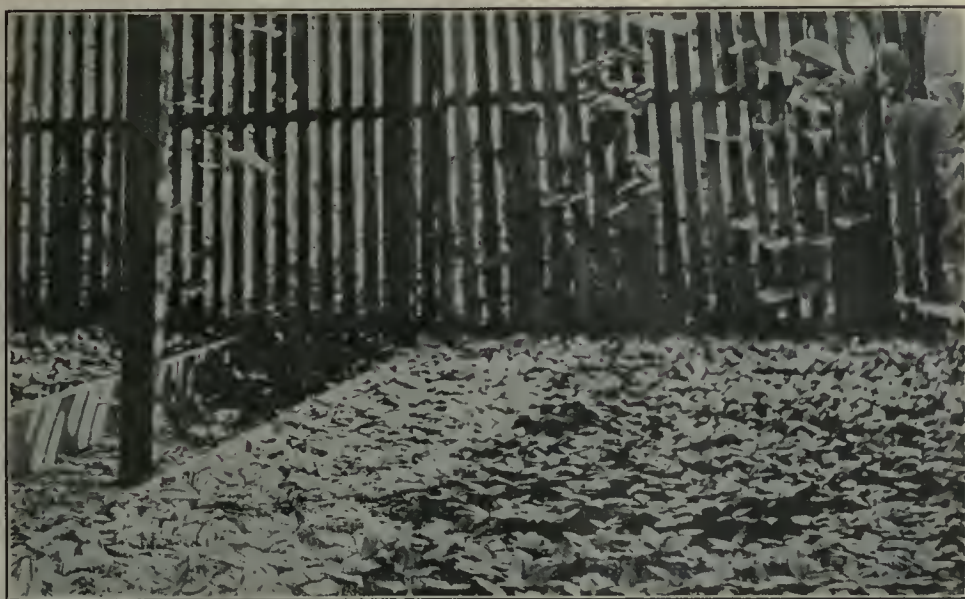
He advocated the matted row system, the rows being three and a half to four feet. The plants should be started two and a half or three feet apart in the row and put out as early in the spring as possible. A great many growers cultivate both ways for a considerable time before allowing any runners to start; they then allow the runners to fill up one way and discontinue cultivating one way and in this manner they soon secure a matted row. The runners are not allowed to form until July. If labor could be secured at a reasonable price it would pay to send a man over the patch to space the runners. Strawberry plants should not stand closer together than four inches. If the soil is very rich the rows might be 15 or 18 inches wide.

For strictly fancy trade he would recommend the Glen Mary, Sample, Beltz and Uncle Jim. The Williams was most generally grown for market purposes and the Wilson for shipping purposes. Parsons Beauty had given good results at the Experimental Farm.

He made a strong plea for the cultivation of gooseberries. The canning factories were paying big prices and they were easily grown.

JORDAN STATION REPORT

There was a very interesting report from the Jordan Experimental Station, at Monteith. They tried the experiment of growing certain strains of tomatoes under glass cultivation, but they did not succeed except with one variety called the Ferguson O. K., and that yielded over eight pounds of fruit per vine. About thirty varieties of musk melon were started in the greenhouse, and they succeeded very well with the experiment. Fifty-nine varieties of peas were tested for yield. They found that growing the



A Ginseng Seed Bed at Brantford, Ont.

peas in rows about six inches broad gave better results than when sown closer together.

It was suggested that they should experiment at Jordan Station along the line of raising early vegetables by the use of frames and pit houses, the very intense system of French Suburban gardening especially suited to large cities and the relative value of commercial fertilizers and manure under certain conditions or during certain seasons of the year.

An address on "Irrigation of Garden and Greenhouse" was given by W. H. Coles, of Troy, Ohio, explaining fully the Skinner System of Irrigation.

MELON CULTURE

Melon Culture was discussed by F. G. Fuller, of Hopedale. He said that his first thought would be the variety. Some markets demand a small melon, while others demand a larger melon. A grower should be particular to get a melon suitable to his market and one that will command a good price. He should select a melon of good type and flavor; saving the seed of a good sample in flavor. A melon without flavor would not be a satisfactory one to grow. The hot bed should be prepared about the 25th of April, and should have about ten inches of straw manure well tramped.

The earth should be tramped before the seed is planted. Four or five inches of good earth would be sufficient. It should then be marked off with six inch marks both ways and in each crease a depression should be made with a tea cup or some similar object and then in the hole thus made four or five seeds should be planted on the outside edge and then covered with fine earth and packed down with a spade and then watered. Care should be taken to watch the patch closely to see that it gets air and plenty of water.

In planting out a stone boat or low wagon was found satisfactory. Part of the manure should be cut out with the soil to keep it together. A southerly slope is best and if possible it should be of rich sandy loam. It cannot be too rich. The land should be well worked after the plants are set out. About a week after the plants are set out they should be given an application of nitrate of soda. Put a couple of teaspoonfuls around each plant. Two or three applications about ten days apart are sufficient. The melon should not be set out unless the weather is warm, a cold day will give them quite a check.

An address on "Experiments with Cabbage, Tomatoes and Asparagus," by Prof. Myers, State College, Pa., was illustrated with lantern slides, and demonstrated clearly that there are strains in varieties of vegetables, as well as in breeds of animals, some cabbages going mostly to bunches of leaves, while others, almost without exception, had beautifully-formed, solid heads.

"Insects Injurious to Vegetable Growing" were discussed by Mr. L. Caesar, O.A.C., Guelph, an extract from which will be published later. A banquet given the evening before the convention by the members of the London Branch to the visiting delegates proved most enjoyable.

The Ginseng Seed Bed

E. A. Russell, Brantford, Ont.

The least expensive method of making a ginseng garden is to buy the seed from a reliable dealer and grow all one's plants. Time will be saved, however, if a few one-year-old and two-year-old roots are planted at the same time, as these will provide all the seeds needed in the following year.

The seed of the ginseng plant will not germinate until nineteen months after it

ripens and is usually packed between layers of moist sand for this period. The seeds thus kept are the "stratified seeds" which dealers sell for planting. This method saves garden space and weeding for one year and is most satisfactory, but if economy of land is no object the new seeds may be planted and left in the ground for the nineteen months required for germination. In either case the best time for planting is in late September or October.

The seed bed should be composed of sandy loam soil which has been under cultivation for a year. It is usually made four feet wide with sides of one-inch rough boards six inches in width. The sides protect the plants and enable one to build up a bed of rich material more easily. Rotted manure should be applied in the proportion of two wheelbarrow loads to forty square feet of ground and be well mixed with the soil, which must be free from stones and lumps. If this can be done in July or August it will be all the better, as the manure will then combine with the earth more completely. The addition of leaf mold or black earth from the woods will be beneficial but is not necessary.

Plant the seeds in rows three inches apart and at intervals of one inch apart in the row and one inch in depth. This can be done most expeditiously and so as to produce a pleasing regularity of appearance in the growing plants by using a dibber or marker, which anyone can make in a short time. From a board three inches wide and one inch thick, cut a piece four feet long or just as long as the width of the bed. Bore half-inch holes an inch apart the full length of the board and in each hole insert a peg made so as to project one inch. Nail a narrow strip of wood for a handle along the side opposite to the projecting pegs. With this tool a row of holes can be made across the bed in a moment all at the proper distance and depth.

Having planted the seeds, the only thing requiring to be done is to cover the bed with a mulch for protection against alternate freezing and thawing and also more especially to preserve moisture for the plants during the following summer. Most growers advocate the use of leaves or rotted manure for mulching but the experience of the writer shows that for seedlings the best material is sawdust. Several different methods were tested during the past year. In the bed on which about a half-inch of sawdust was used practically every seed produced a plant which thrived all summer.

Crushed bone is a cheap and valuable fertilizer.—Rev. P. C. L. Harris, Guelph, Ont.

The Canadian Horticulturist

Published by The Horticultural
Publishing Company, Limited

PETERBORO, ONTARIO



The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF THE ONTARIO, QUEBEC, NEW
BRUNSWICK AND PRINCE EDWARD ISLAND
FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.
2. Subscription price in Canada and Great Britain, 60 cents a year; two years, \$1.00. For United States and local subscriptions in Peterboro, (not called for at the Post Office) 25 cents extra a year, including postage.
3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than \$1.00.
4. Change of Address.—When a change of address is ordered, both the old and the new addresses must be given.
5. Advertising Rates quoted on application. Copy received up to the 18th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.
6. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT.

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1909. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1909.....	9,456	January, 1910.....	8,925
February, 1909.....	9,310	February, 1910.....	8,967
March, 1909.....	9,405	March, 1910.....	9,178
April, 1909.....	9,482	April, 1910.....	9,410
May, 1909.....	9,172	May, 1910.....	9,505
June, 1909.....	8,891	June, 1910.....	9,723
July, 1909.....	8,447	July, 1910.....	9,309
August, 1909.....	8,570	August, 1910.....	8,832
September, 1909.....	8,605	September, 1910.....	8,776
October, 1909.....	8,675		
November, 1909.....	8,750		
December, 1909.....	8,875		

Total for the year 107,638

Average each issue in 1907, 6,627

" " " " 1908, 8,895

" " " " 1909, 8,970

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PETERBORO, ONTARIO

EDITORIAL

DECLINE OF THE APPLE INDUSTRY

When Mr. J. W. Flavell, of Toronto, one of the most influential Conservatives in Ontario, recently addressed his open letter to the Minister of Agriculture, in which he claimed that there has been a serious falling off of late years in the production of agricultural products in the province and asked the Hon. Mr. Duff what he was doing to bring about an improvement, he little knew how soon his contentions, as far as the apple crop is concerned, would be substantiated by an official of the Department of Agriculture. The statement by Prof. J. W. Crow, of the Guelph College, that for fifteen years the production of apples in Ontario has been declining and that it is still declining, is of too serious a nature to be passed over lightly. Prof. Crow has stated what he believes to be the reasons for the decline. The question remains, how can the situation be dealt with most effectively?

It sometimes happens that blame is imposed on the Department of Agriculture for the existence of conditions for which it is not properly chargeable. In this case, however, we feel free to say, without attempting to fix the responsibility for what has happened in the past, that if the Minister of Agriculture does not take immediate steps to arrest the present decline and bring about a decided improvement in conditions he will leave himself open to the most severe criticism. Half-way measures will not be sufficient. A thorough, systematic and comprehensive campaign must be inaugurated that can be counted on to ensure definite results.

Where cooperative fruit growers' associations exist conditions are the best. More of these associations need to be formed. The late Hon. John Dryden, was instrumental in organizing, through his assistants, most of these associations. The work thus started should have been pressed vigorously. It needs to be now. Hundreds of apple growers in Ontario are making a great success of their orchards. In some sections there are men who are obtaining large financial returns through leasing neglected orchards and making them produce good crops of fruit by means of proper cultivation, pruning and spraying. The responsibility of demonstrating the success of these methods to the average farmer in our best fruit districts rests mainly with the Department of Agriculture.

PEACH SHIPMENTS

It is satisfactory to know that the trial shipments of peaches made recently to England by the Dominion and Ontario Departments of Agriculture have turned out satisfactorily. Critics have claimed that these shipments will be of little value and have based their claims on the ground that immense quantities would have to be shipped, and for a period of years, to make any impression on the British market. It has been contended, also, that the peaches grown in Ontario are not the kind the British market demands for the high class trade.

While there is a large measure of truth in both of these contentions, the shipments that have been made should, in fact they have already produced tangible results. Before we can hope to build up an export trade in peaches—and tomatoes as well—with the mother country it is necessary that

we shall experiment to ascertain the styles of packages to use and the conditions of shipment necessary to obtain the best results. Former experiments in this direction proved failures for the most part. There are indications now that the new methods that are being tested will prove more successful. In connection with these tests experiments can be tried with the object of ascertaining the varieties of peaches and tomatoes that will give the best results. If necessary, new varieties can be planted and in due time tested.

Preliminary work of this nature is necessary before any serious attempt to gain a foothold in the British market is made. This work cannot be started too soon. For this reason we feel that both departments of agriculture are to be commended for what they are attempting.

WESTERN ARITHMETIC

Literature issued by the management of the Canadian National Apple Show, to be held in Vancouver in November, states that "a grand total of 9,000 apples" will be comprised in the plate display. It is added that these apples will average three inches in diameter and that if placed in a single row touching one another they would extend five and one-ninth miles. Isn't that wonderful? Just think! 9,000, multiplied by three represents 27,000 inches, which is equal to five and one-ninth miles. Er! what? There are 5,280 feet in a mile or 63,360 inches. That seems funny.

Next, however, we are informed that the secretary estimates that "there will be a grand total of 12,600 boxes of apples on display. A box of apples is approximately 20 inches long. If all of these boxes of apples were placed end to end and a little boy told that he could have the last box in the row, if he would go after it, he would have to walk 47 and three-fourth miles to get it." Gracious! Wouldn't he be tired? But, let us see. If we multiply 12,600 by 20 we will have a total of 252,000 inches. There are 63,360 inches in a mile. Thus, 252,000 inches is a fraction less than four miles. Oh dear! Oh dear!

But, it never rains but it pours! Here is another. After being told that there will be 'a total of 1,638,000 apples in the entire show' we are further informed that "these apples will average about two and one-quarter inches in diameter and if they were placed in a single row it would be 698 miles long." Isn't it wonderful—to think that 1,638,000 multiplied by two and a quarter equals 3,276,000 inches, which on a basis of 63,360 inches to the mile equals 53 and a fraction miles, net 698. We hate to say anything that may detract from the magnitude of this great show, but these figures take our breath away. They astonish us. We are overcome. Do you wonder that British Columbia is sending to Ontario for school teachers? We hope that our teachers will show them the difference between feet and inches and help to make the show a credit to Canada. But really, this is too good to let go by without comment.

While our Canadian fruit growers were unable to take advantage of the invitation of the National Fruitgrowers Federation of Great Britain to pay a visit to the Old Country this year we hope that the members of the Federation understand that their invitation is deeply appreciated on this side of the water. Conditions, not a lack of desire on the part of our fruit growers, made the taking of the trip impracticable. There is a general desire that such a trip may prove possible some time during the next few years.

It is to be hoped that the Dominion Government will give careful consideration to the proposals that will be laid before it by the members of the Ontario Vegetable Growers' Association in regard to standards of weight for vegetables. The Ontario Association should endeavor to enlist the support of the members of the Quebec Vegetable Growers' Association.

The directors of the Ontario Horticultural Association have acted wisely in arranging to secure prominent speakers from the United States for their annual convention in Toronto next month. Such speakers add interest to the proceedings and give an inspiration that cannot be obtained in the same way by any other method.

Again our supply of copies of The Canadian Horticulturist, this time for the month of July, has become exhausted. If any of our readers will let us have their copies of the July issue their kindness will confer a favor.

Ontario Apple Prices

P. W. Hodgetts, Sec. Fruit Growers Association, Toronto

The apple crop in Ontario is one of the poorest for many years. Hundreds of orchards have no crop whatever, especially in the western parts of the province. Others have enough to supply a local demand. Where orchards have been properly looked after and thoroughly sprayed, the quantity is greater and the quality excellent. Orchards that have a crop but were not sprayed are showing plainly the effects of scab and codling moth.

Those cooperative associations having any sized crop have sold most of their apples. Prices have ranged from \$2.25 to \$2.60 for fall apples in quantity, up to \$3.75 for the better varieties of winter apples. One association sold their entire crop for \$3.00 for Nos. 1's and 2's, 75 per cent. to be No. 1. Another reports having sold for \$3.00 No. 1's and \$2.75 for No. 2's. The demonstration orchards sprayed by the Department of Agriculture in Nottawasaga township, Simcoe County, will likely grade 80 per cent. No. 1, and the apples have been sold at \$3.00 for No. 1 fall, and No. 1 and 2 winters. Early apples which have been going west have brought much larger returns than usual.

Mr. W. H. Bunting of St. Catharines, Ont., has been asked to act as an associate judge at the Canadian Apple Show in Vancouver next November and has accepted the appointment. Mr. Bunting is an experienced exhibitor and judge and should give satisfaction.

Fruit Display at Canadian National Exhibition

The fruit exhibit at the Canadian National Exhibition this year was good, there being a considerable improvement over previous years. As a general rule, owing to the early date of the exhibition, grapes are not far enough advanced for a good showing, but this year, although a few green bunches were in evidence, this part of the exhibit as a whole was excellent.

A decided improvement was noted in the general arrangement of the various displays, due partly to the fact that more space was devoted to this department than formerly. The space, however, could have been utilized to much better advantage, both from the standpoint of judging and to give spectators a better chance to compare the various exhibits of each variety of fruit. No regular system seems to have been followed in the arranging of the different classes. Exhibits of plums were noted in three different places in the hall, grapes in four places, and peaches and pears in at least three places. If the different classes in each variety were arranged in order, it would give a more pleasing effect, and enable spectators to readily find all the exhibits in the varieties in which they are particularly interested.

The display of fruit in commercial packages was splendidly located, but much better use could have been made of the space allotted to this portion of the fruit exhibit. Fruit, excellent in quality and well packed was there, but the general arrangement of the packages was anything but good. In fact, it almost appeared as if no attempt had been made at arranging the exhibit in an attractive form, and numerous remarks by passers by voiced this opinion. A very little effort on the part of those in charge of the arranging of the fruit exhibits could have made a great improvement in this department. The package display is a great source of education to fruit growers, and it should be arranged so as to attract the eye, and also enable the passer-by to readily see and examine the different methods of packing. It may be noted that one row of boxes was set upright at the top of the exhibit, where none but a very tall person could even see what kind of fruit was in the boxes.

In the plate displays, the competition was keen, and the quality of the exhibits excellent. The apples were good, both as regards quantity and quality. Peaches, plums and pears were good. The competition in all of these varieties was keen. Grapes were also good, and of a much better quality than is usual at this time of the year. As usual most of the prizes went to

the St. Catharines growers, but Marshall Bros., of Hamilton and R. H. Dewar of Fruitland captured a large number of prizes in the plums and grapes.

TABLE COLLECTIONS

A new feature was the table collections, which attracted much attention and added much to the attractiveness of the whole exhibit. Displays of peaches, plums and grapes were shown. Two tables each of plums and peaches were entered, and three of grapes. L. C. Gray, of St. Catharines, captured the first prize in both the plums and peaches and R. Cameron second. In the grapes, J. H. Smith, of St. Catharines, won first prize; F. G. Stewart, Homer, second; and W. Selby, Homer, third. The second prize table had the best collection of varieties, and if anything, the better quality, but the judge found objections to the use of foreign material in decorating the table. The prize list called for simply a display of grapes, nothing else.

GOVERNMENT EXHIBIT

A very attractive display was put up by the Ontario Government. It was poorly located, however, being away off in a corner and at a considerable distance from the main fruit exhibit. Some very fine fruit was shown, there being an excellent display of commercial packages. The space was used to excellent advantage in displaying the fruit, which was placed so that it could be easily seen and examined by passers by. A prominent feature of this exhibit was a large pyramid of apples extending almost to the roof. The fruit in this exhibit was a good advertisement of the fruit growing possibilities of Ontario.

BRITISH COLUMBIA DISPLAY

The British Columbia exhibit attracted much attention, and demonstrated the possibilities of British Columbia as a fruit growing province. Fruit of all kinds was shown, the early varieties being preserved in glass jars. The whole exhibit was displayed in a rustic booth of attractive design, which showed off the exhibit to perfection. The fruit in this exhibit was not packed especially for exhibition, but was exhibited as packed by the growers for ordinary commercial purposes.

Crab apples, peaches, plums, pears, apples and other varieties of fruit were shown in commercial packages, and judging by the display in the other sections of the hall, Ontario growers can well learn a few lessons from British Columbia growers concerning the art of packing fruit. The fruit was selected from all parts of the pro-

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vince, and considering the fact that it had travelled across the continent, both the condition of the packages and the quality of the fruit was excellent.

A feature of the flower exhibits was a display of gladioli by Campbell Bros., of Simcoe and Wm. Colvin of Galt, the prizes being awarded in the order named. The exhibits were located near the centre of the hall and were much admired. An excellent display of asters was also shown by T. H. P. Hammett, of East Toronto.

Ontario Horticultural Exhibition

There promises to be a splendid showing of fruit from the individual counties at the Ontario Horticultural Exhibition in Toronto, November 15-19. Norfolk county will be to the fore again with a beautiful exhibit, but will have strong competition from Northumberland and Durham, who are sending in 290 barrels of apples for their display alone. Ontario county has promised to put up something very fine and Mr. H. Jones reports that Leeds and Grenville will this year expend their grant in exhibiting a unique collection of McIntosh, Snow and Scarlett Pippin and other apples of that type for which these two eastern counties are noted. The individual exhibits will be very strong.

There will be no changes in the prize list in the honey and vegetable sections, with the exception that the special section calling for canned vegetables will be cut out. The fruit list has been revised, a number of extra varieties have been added to the package classes as well as additional sections under the plate classes. It has been decided to cut off the three classes which were specially devoted to the northern counties. Two other varieties, the Snow and Wolf River have been added in the

class calling for specimen apples with prizes of \$10.00 and \$5.00 for the best single fruit.

The preserved fruit class will, this year, be under the management of the Women's Institute Branch of this Department, and it is expected that there will be a big competition for the prizes. In addition, special prizes will be awarded for displays to be put up by individual institutes. Already a number of these have signified their intention to enter. The floral prize list is practically the same as in 1909. Only two slight changes have been made which cut out the section calling for double violets and hamper arrangements in floral designs.

Ottawa Vegetable Growers

Members of the Ottawa Branch of the Ontario Vegetable Growers' Association recently visited the gardens of M. P. Carstesen, Bailie Bros., and W. Hull at Billing's Bridge. The large native plum orchard of P. Carstesen, and his celery store house drew much attention. Mr. Carstesen stored 15,000 celery and a lot of cauliflower in it last year. He has used the house for three years and has never had any loss in it. The house is in perfect condition. It is cheaply made. All the work was done by himself. The walls are of concrete. One wall forms the north wall of his greenhouse.

Another interesting sight was a field of 10,000 late cauliflower at Bailie Bros., which considering the dry summer, was a wonderful crop. Practically all the plants on the whole promised a good head. A young orchard at Mr. Hull's had a very fine crop. Two rows of Wealthy and some McIntosh Red apples were extremely well laden. Refreshments were served the visitors by the hosts.

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"Really too much cannot be said for the Herbert on account of its hardiness. The quality of the berry is, in my opinion, rather better than Cuthbert, especially when canned, and it also has the advantage in size. I do not know when I gave a recommend with heartier good-will.

"A. McNEILL,
"Chief Fruit Division."

"Johnson, Nebraska, May, 13, 1910.

"W. J. Kerr, Esq.,

"Woodroffe, Ont., Canada.

"Dear Sir:—The Herbert Raspberry plants came to hand O. K., and were planted the same day, and seem to not feel bad for changing their nationality, as they are starting to grow nicely, and they certainly look as if they were built for business.

Yours respectfully,

"G. S. CHRISTY."

The above letters are evidence of the genuineness and quality of our Herbert plants. The Herbert has no equal as a heavy yielder of strictly high class berries. We are the only nurserymen who have ever secured plants from the originator.

The originator, with Mr. W. T. Macoun, Dominion Horticulturist, Alexander McNeil, Chief of the Fruit Division of the Dominion Department of Agriculture, and a staff representative of The Canadian Horticulturist, inspected and approved our large stock of plants, this past summer, so we are not ashamed of them.

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The Niagara District Horticultural Exhibition

The Niagara District Horticultural Exhibition, that was held in St. Catharines September 14 and 16, was a credit to the great fruit centre in which it took place. There were fine displays of fruit, flowers and vegetables, the exhibit of flowers being particularly fine. The exhibit of fruit in commercial packages was not as large as in former years. This was due largely to the fact that the St. Catharines Cold Storage Company was unable to make an exhibit because of the shipment of peaches it was making to the Old Country. Aside from this the exhibition, in other respects, was considerably ahead of all previous efforts.

Two very fine displays of fruit were made, one by S. D. Furminger and the other by W. H. Bunting in competition for the prize given by M. F. Rittenhouse, of Chicago. While more taste was displayed by Mr. Bunting in his exhibit, Mr. Furminger's collection was the larger of the two and won the first prize, Mr. Bunting's exhibit taking second.

A very fine display of plants and flowers, as well as semi-tropical trees, including acacia, bay and fig, was made by the Niagara Falls Park Commission under the direction of Mr. Moore, the new head gardener. Seven employees of the park were required to group this display.

An exhibit that attracted much attention was one of preserved fruits in glass jars by the Dominion Department of Agriculture. It is intended that this exhibit shall be displayed in foreign countries. The jars contained not only the fruit but the foliage and branches as well. All were in perfect condition. The display attracted much attention.

SOCIETY EXHIBIT

The fine silver trophy offered by the St. Catharines Horticultural Society to the

horticultural society in the province making the best exhibit of flowers such as hydrangeas, Phlox Drummondii, asters, geraniums and so forth brought out entries from Toronto and Galt societies that did both societies credit. The Toronto society won the cup, but will have to win it again before it will become its permanent property.

The contest for the best decorated tables had seven entries. The prizes were won by Mrs. Edward Gander, Mrs. James A. Wiley, Mrs. A. E. Malcolmson and Mrs. E. Snider. On Mrs. Gander's table there was a delicate arrangement of pink asters and maiden ferns in a basket and a tray with white trailing clematis at the corners.

The prizes offered for the best collection of vegetables were won by S. D. Furminger and F. F. Reeves. As this exhibition does not receive a direct government grant its officers are deserving of hearty commendation on the great success it has achieved.

Ontario Peaches in England

The Ontario Government agent in London, England, N. B. Colcock, has cabled the Deputy Minister of Agriculture for Ontario, Mr. C. C. James, that the first shipment of Ontario peaches to England arrived in excellent condition. When placed for sale on Covent Garden it was eagerly sampled by the dealers. This fruit was grown near the Experimental Station at Jordan, Ontario, and was packed by P. W. Hodgetts, Director of the Fruit Division of the Department of Agriculture.

It is reported that this fruit brought the highest prices of any of the same class sold at the same time. A despatch by the Canadian Associated Press reported that

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it was understood that Sir James Whitney, Premier of Ontario, who was in London at the time sent King George a box of these peaches and received a letter from the King's Secretary acknowledging their receipt.

Quebec Pomological Society

The annual summer meeting of the Pomological and Fruit Growing Society of the province of Quebec was held at Sherbrooke, Que., at the time of the Sherbrooke Exhibition, Aug. 30 to Sept. 1. The program included an illustrated lecture by Prof. John Craig, of Cornell University, an address by R. B. Whyte, of Ottawa, on "Perennials," and an address by Prof. Louis Meunier, of the Department of Agriculture, Paris, France, on the "Cider Industry," an outline of which is published elsewhere in this issue. The attendance was small the counter attractions of the exhibition militating against the interest taken in the meetings. Demonstrations in orchard work and fruit packing were given on the grounds of the exhibition, under the direction of an expert from Macdonald College.

Hon. Sydney Fisher expressed the hope that the Society would send an exhibit of its choice fruits to the Canadian National Apple Show in British Columbia. Hon. Mr. Caren urged the dissemination of knowledge pertaining to fruit growing throughout the province in order that a greater interest might be aroused in the growing of fruit.

Mr. Maxwell Smith, of British Columbia, Manager of the Canadian National Apple Show, asked for the cooperation of the Society in making the show a success. A resolution of condolence was passed with the family of the late Mr. Robinson of Montreal who for many years rendered valuable ser-

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vices to the society. Prof. S. Blair, MacDonald College, the President of the Society, presided at the meeting.

Items of Interest

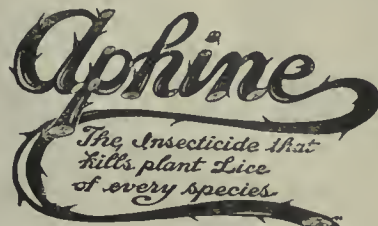
The annual convention of the Ontario Horticultural Association will be held in Toronto Nov. 17 and 18 at the time of the Ontario Horticultural Exhibition. A meeting of the executive committee of the Association was held in Toronto on September 6th, with President R. B. Whyte in the chair, at which arrangements were made for an interesting program. Two well known speakers from the United States, Messrs. Horace McFarlane, Harrisburg, Pa., an enthusiast on civic improvement, and Harland P. Kelsey, a distinguished authority on native flora in the United States, will address the convention.

The Corn Reporter, issued by the United States Department of Agriculture, reports that on the first of September the average condition of apples throughout the United States was 46.8 as against 44.5 on September 1, 1909, and a ten year average on the same date of 54.7. The average condition of white potatoes was 70.5 as against a ten year average of 79.8. Peaches showed an average condition of 64.0 as against a ten year average of 56.6. Grapes were 77.2 against a ten year average of 83.8. Pears showed an average condition of 63.9 as against 53.6 on the same date last year. Tomatoes averaged 78.6 against 81.3 a year ago. Onions 83.8 against 86.1 a year ago and cabbages 85.8 against 78.2 last year.

An informal meeting of officers of a number of the leading cooperative apple growers' associations in Ontario was held in Toronto at the time of the Canadian

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NURSERIES—POINTE CLAIRE, QUE.

National Exhibition. It was reported that fruit in unsprayed orchards was of poorer quality this year than usual. Robert Thompson, of St. Catharines, stated that they had sold early apples in the west for as high as \$2.75 per forty pound box. Mr. Mitchell, of Thornbury, reported that buyers in the Georgian Bay District were offering \$1.25 to \$1.40 for fall and winter apples on the trees. Most of the associations have sold their crops.

At a luncheon of the directors of the Central Canada Exhibition held at Ottawa last month, one of the judges, Mr. R. B. Whyte, of Ottawa, who is the president of the Ontario Horticultural Association, criticised the management of the exhibition for not having given more attention to the horticultural exhibits. Complaint was made that the building was old and poorly located on the grounds, that fairs were allowed in the building and that the prizes were not large enough. It was stated that the exhibit of fruit was most creditable to the Ottawa district, and that much larger exhibits would be made were an effort put forth to encourage them.

The difficulty which many people experience at this time of the year in selecting the right kind of shrubs and trees as well as plants to grow, has led Mr. E. D. Smith, the well known nurseryman, of Winona, Ontario, to issue a little booklet entitled, "What Shall I Plant and Where Shall I Plant It?" The information it contains is most helpful. It gives lists of shrubs for shady places, wet or moist places, dry and shallow soils and for sea-shore planting. Lists are given of trees for street and avenue planting, for country or suburbs, of hedge plants, screens to hide objectionable views, wind breaks, ever-

greens for bed planting, rapid growing trees and vines, lists of flowering shrubs with the months in which they flower and other similar information. The booklet is well worth sending for.

Mr. Maxwell Smith, Manager of the First Canadian National Apple Show, which will be held in Vancouver from Oct. 31 to Nov. 5, has been in the east recently soliciting exhibits of fruit for that exhibition. Before leaving for the West he reported that Nova Scotia had arranged to send an exhibit, although it will not be as large as would have been the case had the crop of Gravenstein apples in Nova Scotia this year been larger. The Pomological Society of the province of Quebec, he stated, intends to send a full carload of Snow apples. Mr. Smith promised that if eastern growers would exhibit at the show in British Columbia this year, the British Columbia growers would return the compliment.



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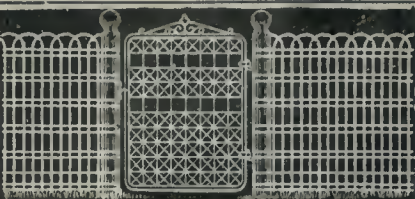
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Death of W. E. Wellington

Death came suddenly recently to Mr. W. E. Wellington, of the firm of Stone & Wellington, nurserymen of Toronto and Fonthill. Few men were as well known in horticultural circles throughout Canada as was the late Mr. Wellington. The immense business conducted by the Fonthill nurseries in all the provinces of Canada resulted in Mr. Wellington building up a



The Late W. E. Wellington

large acquaintance among the horticultural authorities and others interested in fruit growing in the different provinces.

From 1897 to 1899 Mr. Wellington was President of the Ontario Fruit Growers' Association. He was a life member and at one time First Vice President of the Canadian National Exhibition, of which he was a director for many years. The late Mr. Wellington was sixty-one years old.

COMING EVENTS

Under this heading, notices of forthcoming exhibitions and meetings of horticultural importance will be published. Send the information as long in advance as possible.

Vancouver, B.C., Canadian National Apple ShowOct. 31-Nov. 6
 Ontario Horticultural Association Convention, TorontoNov. 17-18
 Ontario Horticultural Exhibition, Toronto,Nov. 15-19
 Nat'l Apple Show, Spokane, Wash., Nov. 14-19
 Nat'l Apple Show, Chicago, Nov. 25-Dec. 4

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NOTES FROM THE PROVINCES

Eastern Annapolis Valley

Eunice Watts, A. R. H. S.

During the history of apple growing in Nova Scotia, there has never been such a shortage of fruit as this year; however as the apples begin to show themselves larger, those orchardists who at first thought that they would only have fifty barrels now estimate the crop to be a hundred and even more, so that the outlook is a trifle better than was expected, but it is going to be a very hard year for those who have only apples to count upon. Only the best hands will be put on in the packing houses which will make it hard for the laborer as well as the grower. In the western part of the valley several people have not sufficient fruit for their own use.

In the low lying district of Aylesford a severe frost during the latter part of August destroyed cranberries, beans, corn and vines, while in the east of the county the beans and corn are still fresh at the time of writing, September 14th.

Fruit trees look a dark rich green and promise in the future to make good their year of rest. The trees in the nursery rows have made luxuriant growth and orders for 1911 and 1912 are coming in very fast.

The budding of apple and plum trees finished about the middle of September.

Apple speculators have been very quiet. Kings have been sold for \$4.50 a bbl., \$3.00 has been offered for Gravensteins, Duchess \$2.50, and Crimson Beauty \$4.00.

British Columbia

"The provincial government will make exhibits of provincial fruit at the leading centres throughout the United Kingdom during the coming season, on similar lines as in previous years. A carload will go forward about October 9 in charge of Mr. R. Bullock-Webster, provincial exhibition commissioner. It is also intended to forward a second car later in order to reach London in time for the Royal Horticultural society show at Vincent Square. By this means we will be enabled to stage a better exhibit than in previous years, owing to the fact that the fruit can be picked later and will have a better color.

The weekly reports of British Columbia's fruit Commissioner, Mr. J. C. Metcalfe, who continues to visit the different markets for fruit in the prairie provinces, are being followed closely by our growers and shippers. It is believed that his work among the fruit dealers in the different cities is leading them to take a greater interest in British Columbia fruit. His descriptions of the methods of packing fol-

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REV. J. J. HARE, Ph.D.
Whitby, Ont.

lowed by the United States growers who ship fruit to the same markets and his suggestions for improvements in our methods are proving helpful.

Niagara District, Ont.

By Weary Worm, Wiaona

Since the second week of Toronto Fair, when the weather was hot and muggy, we have had ideal weather conditions for picking, packing and shipping fruit. There has been a keen demand for fruit on the part of the public and prices have been fairly good for the grower.

The packing and distribution of fruit is gradually improving although much remains to be done, notably in the matter of shipping green fruit. The plum market was injured to a considerable extent by this practice and the grape market is also suffering. Plums are about over now and numbers of orders for them are coming in to the dealers, which they cannot fill.

Somewhat of a glut of peaches took place during the second week of the Toronto Fair, and Early Crawford's sold rather low for a few days, but since then the market has improved and peaches are selling now better than ever, with a keen demand on the part of the public. A great deal of fruit and tomatoes has been shipped to the West this year, both from the Winona-Grimsby end, and from St. Catharines.

Bartlett pears have been a capital crop and an exceedingly good sample, they are just about over now, and are being succeeded in the markets by Anjous, Sheldons, Seckels, etc. Duchess are a light crop, and Keiffers, medium.

Early Crawford peaches are just about over and Ellert's are coming upon the market now. They are not as heavy a crop as usual, but are an extra good sample.

Grapes are coming in freely and are selling at fair prices. Concord and Niagaras are now coming on the market, some of these would have been better held back for another week or so.

Fruit and tomatoes are on the upward trend of late. An unusual feature has been small lots of strawberries and raspberries, which have sold well.

Campbell Bros., of Simcoe, wish to communicate with the gentleman who discussed the Gladicus "Empire" with Mr. John Campbell at the Toronto Exhibition recently.

The Aphine Manufacturing Company report that considerable interest is developing in Canada toward their insecticide Aphine and that their business on this side of the line is increasing, now that their product is becoming known. It is handled in Canada by Thos. A. Ivey, of Port Dover, and Dupuy & Ferguson, of Montreal.

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Items of Interest

The fruit growers of Northumberland and Durham Counties, Ontario, have formed a County Association with W. H. Gilson, of Newcastle, pres.; and W. H. Dempsey, of Trenton, secretary.

Messrs. Barr & Sons, of Covent Garden, London, England, made an exhibit of Mr. Groff's gladiolus "La Luna" at the last show of the Royal Horticultural Society, and were granted the "Award of Merit."

Clarkson fruit growers shipped two cars of berries this season through to Montreal in iced cars. The shipment was a complete failure. They went by ordinary freight and through neglect were not iced. A fruit train from the Niagara Peninsula for Montreal passes through Clarkson each evening. Fruit for Montreal is loaded on to this train and as the cars are ventilated and make the journey during the night, the service gives good satisfaction. The cool night air circulating through the cars does away with the necessity of icing them.

The Department of Agriculture of British Columbia continues to publish weekly reports from its representatives in the Prairie provinces and in the fruit centres along the Pacific coast of the United States. These reports give valuable information about the condition of the fruit markets, the quantities of fruit being shipped and marketed and advice to the British Columbia growers in regard to the marketing of their crop. The reports are being widely published in the papers of British Columbia and are proving of great value to the fruit growers.

We acknowledge receipt of copies of fall bulb catalogues from J. A. Simmers, Limited, Toronto; Steele Briggs Seed Co., Toronto; and John A. Bruco, Hamilton. They list a splendid assortment of spring flowering plants and bulbs. Persons desiring to have a good assortment to choose from should look over this copy of THE CANADIAN HORTICULTURIST and secure the catalogues of the different seed firms advertising in this issue. A post card will bring a copy of any of them.

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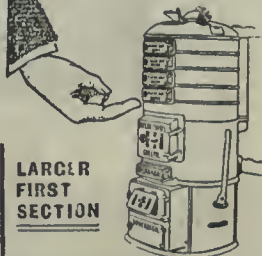
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Eastern Fruit may not be Shown

The Secretary of the Ontario Fruit Growers' Association, Mr. P. W. Hedgetts, writes The Canadian Horticulturist that it is not likely that any Ontario apple growers will exhibit at the National Apple Show at Vancouver next November, notwithstanding the tempting prizes being offered. The distance is so great and the opportunities for damage to the exhibits en route so many that eastern men are slow to take hold.

To do the matter justice they feel that it would be necessary to send a man along not only to care for the fruit on the way out, but also to supervise the placing of

the exhibits at the other end, thus entailing a large expense. As Ontario has no market for fruit in British Columbia the Ontario government is not disposed to make an exhibit.

It will be unfortunate, if at least some eastern fruit is not shown at the big show which every grower in Canada hopes will be a great success. Even should eastern fruit not be shown the event is certain to be the largest exhibition of apples ever shown in Canada.

A sample of a Northern Spy apple, grown last year in Elgin county, Ontario, which had been kept in the cold storage at London, Ont., since a few days after it was

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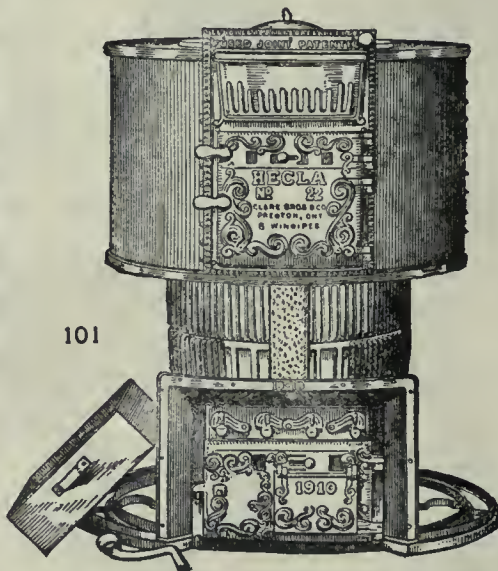
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Send us rough diagram of your home, and we will plan the heating arrangement and give estimate of the cost of installing the right "Hecla" Furnace—free.

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101

picked from the tree, and which was removed from cold storage on August 11, was sent to The Canadian Horticulturist recently by J. A. Ruddick, Dairy and Cold Storage Commissioner. It was in practically a perfect state of preservation, the color and flavor both being of the best.

Mr. P. W. Hodgetts, the Director of the Horticultural Branch of the Ontario Department of Agriculture, while speaking at a meeting of the Lincoln Farmers' Institute at Vineland recently stated that there are now 875,000 peach trees in the Niagara district, as compared with 684,000 in 1901. Of these 500,000 are new, and 375,000 old ones; and the increase is but beginning. The eastern area can produce five and ten times the present amount of fruit. Peaches

are now being introduced into Norfolk, Kent and Essex, and even in Lambton counties. The western claim for the reduction of duty on fruit compels growers to be on the alert for new markets.

We are in receipt, from the Helderleigh Fruit Farms and Nurseries at Winona, of E. D. Smith, of sample leaves taken from young trees growing in the nursery. The leaves include those of the Golden Dogwood, *Ampelopsis heterophylla variegata*, the Variegated *Ampelopsis* and the Japanese Maple. The variegated coloring of the leaves is most unique. The fact that these trees are being grown successfully in the Helderleigh nurseries is of considerable interest.

The Third National Apple Show of the

United States will be held in Spokane, Nov. 14 to 19, and will be followed by an exhibition at Chicago, Nov. 28 to Dec. 4th. The first show in 1908 cost \$41,000. Last year's show cost even more. The people of Spokane have been contributing about \$25,000 a year to the show. The citizens of Toronto contribute about \$1,000 to the Ontario Horticultural Exhibition.

A local paper in Nova Scotia reports that London, England, capitalists are conducting negotiations for the purchase of considerable areas of fruit land for the purpose of growing fruit. It is expected that upwards of \$500,000 may be invested in this way. The work is to be conducted on a cooperative basis. It is intended to market the fruit in London, England.

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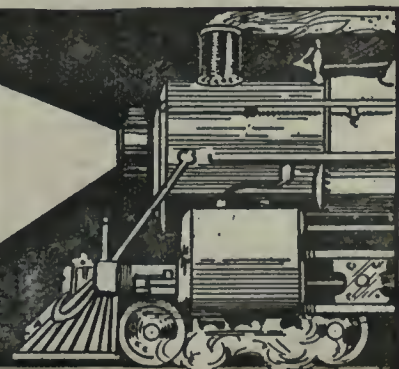
You can order any single article at any price, large or small, and we will send it cheerfully and promptly; but we suggest that you try to make each order as large as possible.

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Ontario's Apple Supply

The following is a partial list of the Co-operative Fruit Growers' Associations of Ontario, together with a statement of the quantities they are prepared to ship this season:

Chatham	1,000 to 3,000 barrels
Alvinston	3 cars
Wyoming	19 cars
Watford	1,500 barrels
Grimsby	6 cars
Ingersoll	4,500 barrels
Trenton	7,000 barrels
Thornbury	12,000 barrels
New Durham	2,000 barrels
Jordan	20 cars
Oshawa	8,000 barrels
Wicklow	3,500 barrels
Sparta	3,000 to 5,000 boxes
St. Catharines, 6,000 boxes and 5,000 barrels	
Nerfolk	30,000 barrels

Growth of Rural Telephone s.—The call of the telephone bell is no uncommon sound in the farmhouse to-day. Men are called for special work, prices are learned, buying and selling is done, orders go to the butcher and the grocer and friendly gossip and chat are among the many things that keep the busy rural lines buzzing. The farmer or fruit-grower with a telephone is no more isolated than his brother in the city—indeed, often far less so—for the city man, as a rule, does not know his next door neighbor. Besides, the telephone is a real money-maker, as it keeps the farmer so closely in touch with market prices and conditions. The initial cost is low, and the line when installed belongs to the farmers, so that there is only running expenses to pay. This, coupled with the fact that the organization of a company and installing the line is made easy by the co-operation and expert advice of the different large telephone supply-houses, which is given free of cost, has been a large factor in the increasing popularity of rural telephones.

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The Canadian Horticulturist

Vol. XXXIII

NOVEMBER, 1910

No. 11

California versus Ontario Fruit in Montreal

T. G. Bunting, Central Experimental Farm, Ottawa

IN the September issue of THE CANADIAN HORTICULTURIST the following lines appeared in a brief article entitled, "Peaches for England": "Our customers in Great Britain who ordered peaches from us last year were delighted with the fruit we sent and with its condition on arrival." Recently a brief press notice appeared in an Ottawa paper with the heading, "5,000 Baskets Canadian Peaches for England."

It seems that the Ontario fruit grower is becoming ambitious to extend his market for fruit abroad, while the California grower is quietly yet surely extending his markets in Canadian cities. In proof of this statement, let me give the prices received and quantities of both California and Ontario deciduous fruits sold in Montreal on September 19th, 1910, which were furnished to me by one of Montreal's leading wholesale dealers:

Californian prices—Peaches, \$1.00 to \$1.25 per 19 lb. box; grapes, \$2.00 to \$2.25 per 25 lb. box; plums, 90c to \$1.00 per 20 lb. box; pears, \$4.50 per 50 lb.

Ontario prices—Peaches, fancy, 40c to 60c per 11 qt. basket; medium, 30c to 40c; grapes, 22½c to 25c per 6 qt. basket; reds, 30c to 40c; plums, fancy, 50c to 60c; medium, 40c to 50c per 11 qt. basket; pears, Bartlett, 60c to 75c for fancy, and 40c to 60c for mediums. Other pears, 30c to 50c per 11 qt. basket.

These prices were remarkable in themselves, but when we look into the quantities sold, it is even more remarkable, for on that day there were five carloads of deciduous fruits and only three carloads of Ontario fruits sold, plus smaller quantities that had come in locally, or apples that had come in by boat. Further, the price received for an average carload of mixed Canadian fruits would not any more than pay the freight and duty on a carload of California fruit. A reliable estimate of the amount of deciduous fruits coming from California is 200 carloads for the season, extending from June to October, and being at its height in August and September. This is exclusive of all citrus fruits and bananas, which are sold in large quantities.

FANCY PRICES EXPLAINED

The fancy retail fruit stores in Montreal handle the bulk of the California fruits. It is here that the fancy prices are realized, the fruit being sold by the dozen, pound or box. The fruit is all of the

highest grade, i. e., No. 1, or fancy. No No. 2 fruit is found. Small quantities of Ontario fruits find their way to these stores, but it is usually No. 1 apples or a few grapes.

These stores have the California fruits displayed in a very attractive manner. The boxes, and it all comes in boxes, have the tops removed. Consequently, a large surface of high grade, properly packed and attractive fruit is displayed in the window. This fruit not only attracts the

preserving or table use. This fruit is occasionally packed, generally "put," in the six quart or eleven quart basket, and has the ordinary flat cover fastened on. The baskets are generally piled ten or twelve in a pile and very little attempt is made to display it in an attractive manner for the principal reason that it is not as attractive or in as attractive a package as the California fruit.

The chief disadvantage of the basket is that it does not allow of the fruit



The Packing House of the Lawrencetown, Nova Scotia, Cooperative Fruit Growers' Association

Cooperation is spreading among the fruit growers of Nova Scotia. The structure here shown is a frost-proof frame building upon a spacious brick cellar. It has a capacity of 10,000 barrels. The crop this year in Nova Scotia has been lightest in many years.

eye of the consuming public, but appeals to its purse, hence the big consumption of it. It all has a fine appearance, and long keeping quality, but does not compare with the Ontario fruit in its eating quality, except in the case of grapes, which are very different from our own.

THE ONTARIO FRUIT

The Canadian fruit, and by this I mean the Ontario fruit, finds its way into the grocery stores and second rate fruit stores. The display is hardly ever inviting or attractive. It seldom brings fancy or even good prices, as the Ontario grower too well knows, but it fills a demand for a moderate or low priced fruit for

being displayed to as good advantage as the fruit put in the box package, even if the cover is taken off, which is too seldom the case. The cover of the basket ob- it is only a partially closed package this struct the view of the contents, and as cover is left on whereas in the case of the box, which is an entirely closed package, it is absolutely necessary to remove the top or cover in order to display the fruit. The basket, also, is too often found badly damaged, broken or dirty, and the fruit likewise in a damaged condition on account of careless handling. A good price could not be expected for the fruit in many of these packages.

The Californian fruit is very uniformly graded as to degree of maturity, size and color, consequently it ripens uniformly in the package. The Ontario fruit is not so carefully graded, if at all, as to degree of maturity, color or size, hence its ripening in the package is not so uniform, and consequently it does not appear to advantage beside the better graded Californian fruit. Too often over-ripe fruit, in the case of plums, peaches and pears, is found in the same basket with quite immature fruit. This causes damage to the ripe or over-ripe fruit.

One advantage claimed, and rightly claimed for the Californian fruit, is its long keeping qualities, which allows it to reach Montreal after a ten days' trip, and then "stand up" from a week to two weeks in a retail store. It is generally supposed the Ontario fruits, especially the peach and plum, will not "stand up" or keep nearly so long as the Californian fruits; yet the Niagara peach growers are shipping 5,000 baskets of their best peaches through Montreal and three thousand miles beyond, and then expect them to "stand up" on their arrival in England. These same growers will tell you that Montreal will not take their best peaches, and pay a fancy price for them, that they have tried it and failed. The reason for this is that their fruit has not created the best impression in the past and a small shipment of no matter how good quality will not make much impression on the market. It will be necessary to teach the Montrealese that the best peaches come from Ontario and this cannot be done in a day or even in a year. The Montrealese are all "from Missouri" in this respect.

ONTARIO FRUIT CROWDED OUT

There were thousands of cases of Californian peaches sold in Montreal throughout the latter part of August, through September, and into October, at from 30c to 60c per dozen retail, of very inferior quality compared with Ontario's best peaches, and every one of these peaches took the place of an Ontario peach. How long will the Ontario peach grower allow this state of affairs to continue, these high prices to be paid to a foreign grower, when they have the market so close at hand, and can grow the fruit to supply that market?

It is true that Ontario fruit will not keep or stand up so long as Californian fruit of the same kind; but if it is as uniformly graded and put up as carefully comparatively it will stand up long enough on the Montreal market, or any other Canadian market, to afford ample time for its disposal in the ordinary course of trade, while it is still in good condition. Recently I kept a case of Elberta peaches in a warm living room, and it was on the tenth day after arrival, or twelfth day after shipping, that the

last peach was used, and not a single peach showed signs of decay until after the seventh day after arrival.

THE CAUSES

In looking over the Montreal market the trouble seems to be due to a number of causes.

1. A wrong impression in regard to the keeping quality of the Ontario fruits, especially peaches and plums, due to improper degree of maturity of many specimens, improper grading and packing, and careless handling in many cases.

2. The basket does not lend itself to as attractive a display of the fruit as does the box.

3. The Ontario fruit does not come up to the high standard of perfection found in the Californian fruit.

4. A wrong impression among Ontario fruit growers that Montreal will not take the best grades of fruits (peaches and plums) and pay a high price for them.

The Apple Situation in Ontario

The statements by Prof. J. W. Crow, of the O. A. C., Guelph, Ont., that have been published in THE CANADIAN HORTICULTURIST lately, to the effect that the apple industry in Ontario has been on the decline for the past fifteen years, and that it is still declining, led THE CANADIAN HORTICULTURIST to consult some of the leading apple growers and buyers of the province to find what steps they believe should be taken to bring about an improvement. A number of interesting replies have been received. With the exception only of Mr. E. D. Smith, of Winona, Ont., those who have been heard from are prepared to admit the decline. Mr. Smith doubts that the quality of the apples produced on the whole, has deteriorated, and believes the quantity produced has increased.

PROF. CROW'S STATEMENTS

Prof. Crow's contentions, put briefly are as follows.

First, That the percentage of number one fruit in Ontario has decreased in the last fifteen years.

Second, That the percentage of wormy, scabby, and otherwise defective apples has increased.

Third, That there is a smaller actual number of strictly number one apples packed in Ontario to-

At the base of all this is the fact, and it is the fact, that the great majority of fruit growers in Ontario are producing too high a percentage of poor fruit. That they can produce a much higher percentage of No. 1 fruit is easily demonstrated by the comparatively few orchards scattered throughout Ontario that are producing from 75 per cent. to 90 per cent. of No. 1 fruit. These orchards are on a par with Californian orchards, and their proprietors are on a par with California orchard proprietors, but the profits are larger in Ontario, because there are no duties and not such high freight rates to be deducted from the income.

Here is a market in Montreal for a large quantity of high grade, high quality fruit which in justice to Ontario, with her climate and fertile soil, should be produced within her borders. The market is hers, if she will only reach out and take it.

day than there was fifteen years ago.

This in spite of the fact that the actual acreage of orchard has increased.

AGREES WITH PROF. CROW.

Mr. D. Johnson, Forest, Ont., an officer of the Forest Fruit Growers' Association and of the Ontario Cooperative Apple Growers' Association, agrees with Prof. Crow's contentions. Mr. Johnson writes as follows:

"I have not the figures of Ontario's apple production by me, but from personal observation I am forced to conclude that Prof. Crow is not far from the truth. By far the greater part of the apple orchards are in a state of decay. It is something unusual to see an orchard that is receiving any care.

"The possibilities of apple growing are unsurpassed by any state of the Union or any province of the Dominion, and yet we find our people going to Washington, British Columbia, and



Interior of Packing House of The Chatham, Ont., Cooperative Fruit Growers' Association. This is one of the most successful associations of the kind in Ontario. The members are required to spray and prune their trees.



An 11-Year-Old Apple Tree at Gordon Head, Near Victoria, B. C.

Oregon, paying \$300 to \$400 an acre for land that will not give any better returns than land here that can be bought for \$50 an acre. The Westerner knows how to boom the fruit industry, keeping it constantly before the public. The people become enthused, develop every opportunity, and are receiving the results of intelligent care.

"Cooperation has done much for the fruit growing industry. Wherever a cooperative fruit growing association exists great strides are being made in apple growing. In fact these associations may be compared to the oasis in the desert. They are like fruitful spots in the desolation of Ontario apple growing districts.

"In my opinion the Ontario Government should boom the fruit industry of the province and encourage in every possible way the cooperative fruit growing associations."

CLOSER INSPECTION ADVOCATED

In a letter received from Mr. J. G. Mitchell, of Thornbury, the general manager of The Georgian Bay Fruit Growers, Limited, Mr. Mitchell says:

"Prof. Crow is right when he describes the apple industry as having been steadily on the decline for the last fifteen years. While in conversation with some of the largest receivers, they asked me why it is they cannot get Canadian apples like they could fifteen years ago. They complain of the amount of rubbish going forward and state that generally speaking no reliance can be placed in the pack. The reliable brands can be counted on the fingers of one hand.

"Why is this? The reason is not hard

to find nor hard to understand. The ease with which growers are able to sell all their fruit, lump orchard, and tree run (that is take everything) is largely responsible for the deterioration in the quality of fruit. Under this system, growers, generally speaking, take little care of their orchards. The great majority of orchards have had no pruning, cultivation, spraying or a pound of fertilizer during all these years. The wonder is that the apples are even as good as they are.

HEAVY LOSSES

"The Old Country receivers, and independent shippers here, have paid during the last few years \$850,000 more for Ontario apples than their market value. This was caused largely by the Old Country money being placed in the hands of unscrupulous men, who bought without judgment or perhaps with the object, as many of them said, of putting the cooperative associations out of business. We do not blame the Old Country people. They sent their money here in good faith, and for two reasons: To help the apple industry and secure sufficient supplies for their own distribution. It was a matter of misplaced confidence. The loss of \$850,000 is a lesson they will not forget, and in future they will be more careful to place their money with responsible parties.

INFERIOR STOCK PACKED

"Even this year, in this district, there are hundreds of orchards being bought up and barrelled where the stock is only fit for the evaporator. These apples find their way to the markets, to the further depreciation of the good name of On-

tario. I can state as a positive fact that there are no good apples in the counties of Bruce, Grey and Simcoe, except the six demonstration orchards near Collingwood in the county of Simcoe, taken care of by the Department of Agriculture, which I personally inspected, and a number of orchards owned by members of the Georgian Bay Fruit Growers' Association here. In all these orchards we have splendid crops of beautiful apples, as good and in some cases better than we have had in many years. These orchards, being scattered, as they are, over considerable territory, show that the reason that they are good this year is not because of their location or soil. The same sun shines on them all alike. Where the fruit is not good it is simply the growers themselves who are to blame. Had all the growers of this district given the same attention to their orchards as those referred to, there would have been added at least \$300,000 more to the assets of this locality this fall.

Mr. Marsh, in his article in the October issue of THE CANADIAN HORTICULTURIST, censures the Department of Agriculture. I hardly think Mr. Marsh can understand the situation. Both the Ontario and Dominion Governments are doing all they can to assist the industry. Without finding fault with Mr. Marsh regarding dealers apportioning off of territory, I would state that that applied to conditions ten years ago, but has nothing to do with present conditions, as cooperative associations have been the means of advancing the prices to growers so much, that it is impossible for buyers to allot themselves territory.

MORE DEMONSTRATION ORCHARDS

"There is nothing more the Department can do, unless open up a few more demonstration orchards. We have had a great many institute fruit meetings here, and have always found the department ready and willing to assist in every way possible. We have held three demonstration meetings in connection with our association, assisted by speakers sent out by the institute, this year, and we sent out hundreds of personal letters not only to our members, but to all those who should be interested, requesting them to be present, and explaining the advantages of attending. It was noticeable that we found the same forty or fifty growers at each meeting. There should have been three to four hundred. It is also noticeable that these thirty or forty growers are the only ones who have apples worth considering this year, and they have them just according to how well they practised what they were told and saw at the meetings.

"The rest of the growers seem to be a hopeless proposition. About the only

Fruit Growing in Norfolk County

By "Weary Worm," Winona

THIS is generally supposed to be a light apple year, but there are beautiful crops in many of the apple orchards of Norfolk County, that are affiliated with the Norfolk Fruit Growers' Association. I have just returned from a visit to these famous orchards, and some account of what I saw should be of interest to readers of THE CANADIAN HORTICULTURIST.

The orchard of Mr. Joseph Gilbertson, situated about three miles west of Simcoe, has a nice crop of about 800 barrels of beautiful apples. The trees have been carefully pruned, sprayed, cultivated and trimmed, and the crop will run from 85 to 90 per cent. No. 1. This is the pioneer orchard of the Association. It formerly belonged to Mr. Jas. E. Johnson, the manager of the Norfolk Fruit Growers' Association. The Greenings were nearly finished, but the Spys, Kings, Baldwins, Talman Sweets, etc., were there in all their glory. Picking, sorting and barrelling was in full swing, and a number of men were at work.

PACKING THE FRUIT

The apples are picked into baskets and emptied on to the sorting tables, where they are separated into ones and twos for barrelling and the culls thrown out in a pile. The packer places two

papers at the bottom of each barrel—to be the face—and then lays the apples in rows beginning at the outside, and working towards the centre. Those for the face are all stemmed first, then the rest of the apples are carefully emptied from the baskets, and after each basket is put in, the barrel is well shaken. The apples at the top of the barrel are then placed evenly by hand, almost as carefully as those at the bottom. The false head is placed on the barrel, which is well rocked, and pressed gently down with a screw press.

The two hoops are then nailed on, also the head lines, and the barrel is reversed and stencilled with the name of the Association, the variety, the number of the orchard, and the name of the packer.

GROWERS ARE NUMBERED

Each member of the Association has a number. The apples are liable to inspection in the orchard at any time, as the Association has a number of inspectors on the road all the time, travelling from orchard to orchard, examining the quality of the pack, and exhorting the men to put nothing in the barrels but the "right stuff." The Association spares no pains to ensure a good pack by its members, and the sorters and packers are warned not to work too fast, that

they may be sure of doing a good job. By this means the Norfolk County Fruit Growers' Association is building up an excellent reputation.

The Association this year sold 30,000 barrels to Mr. J. G. Anderson, of Lucknow, at \$2.75 per barrel f.o.b. for ones and twos. 5,000 or 6,000 barrels are also going to Rockford, Illinois. The total crop will run well on to 40,000 barrels.

The peelers have been sold to the canning factory at sixty cents per hundred or about thirty cents per bushel, and the ciders at thirty cents per hundred, so that every apple counts for something.

A CELEBRATED ORCHARD

The celebrated Olds orchard, situated about two miles east of Simcoe, has a somewhat light crop this year, not much more than 400 barrels from almost six acres. This orchard has a record as follows: 1906, \$150 per acre; 1907, \$450 per acre; 1908, \$100 per acre; 1909, \$300 per acre; 1910, \$130 (estimated) per acre—thus in five years giving an average of \$226 per acre.

Some other orchards are doing very well, such as the Blaney Bros.' orchard of five acres, containing one hundred and ninety-five trees, running over five barrels to the tree, and yielding almost one thousand barrels. In this orchard, out of two hundred and forty-five barrels of greenings picked from the trees, there



A Ten-Acre Peach Orchard in the Niagara District, Owned by J. W. Smith & Sons of Winona, Ont.

This orchard contains 225 trees to the acre. It produced about five baskets to the tree which early in the season Mr. Smith estimated would net him about fifty cents a basket. This is considered only a fair crop. A heavy crop is expected next year. The trees are mostly early Crawford.

were only five barrels of number twos, the rest being number ones.

THE CODLING MOTH

The Stewart and Culver orchards, rented by Mr. Johnson, also are turning out extraordinarily well, both as to quality and quantity. A late brood of Codling Moth penetrating the side of the apple to only a slight depth has been a source of trouble in some of the orchards especially of Greenings.

This worm is not much more than half the size of the mature Codling Worm, and has a black head instead of a red one; but I am of opinion that it is simply an immature Codling Worm, and not a new insect, as some of the growers seem to think. In Blaney Bros.' orchard, which had been sprayed with a gasoline power sprayer at high pressure, practically no side worms were found.

The same trouble has appeared in the orchards of the Niagara District, and it is considered that a spraying with arsenate of lead, in the middle of July, at high pressure is what is needed.

LARGE SHIPMENTS

Ten thousand barrels had already been shipped out by the Association at the time of my visit, October 17th to 20th. This Association was organized in 1906 with a membership of seventeen and an output of about four thousand barrels, and now in 1910 has a membership of over three hundred, and an output of forty thousand barrels. Great progress truly, especially when one considers the quality of the product.

OTHER FRUITS GROWN

Nor are apples the only fruit produced to advantage by the Norfolk County growers. Strawberries, cherries, pears and peaches are also being largely planted, as well as thousands of apple trees. Mr. George Heath, for instance, has about two thousand peach trees, which have given him good crops for five successive years, and nearly one thousand cherry trees, both sweet and sour, also producing well.

Messrs. Johnson and Olds have two fine young peach orchards, and the former has a great strawberry patch of nearly twenty acres. This part of the country also produces great vegetables, as witness the cauliflower crop of McInally Brothers; seventeen acres producing one hundred and twenty-five tons, sold at thirty dollars per ton, and also fifty acres of cucumbers producing nearly one hundred tons at forty-five dollars per ton. Potato growing has also become a feature.

ENGLISH SETTLERS

Attracted by the fame of the district, a number of English well-to-do people are coming in and purchasing small farms and going into fruit. The land has doubled, and in some cases trebled, in value during the last five years.

Credit must be given to Mr. Jas. E.

Johnson, the manager, and the other members of the Association for the great work he and they have accomplished. It is a great object lesson of what co-operation, entered into in the right spirit, can do to raise the value of land and enrich the pockets of the farmers.

There are many other portions of Ontario that would do well to ponder this lesson over and take its teachings to heart. There are many other portions of Ontario where a somewhat similar success could be obtained were similar methods adopted.

Winter Protection of Plants and Shrubs

Wm. Hunt, O. A. C. Guelph, Ont.

IT is not too late to plant bulbs for spring flowering if the work was not done in October, although about the middle of October is, as a rule, the best time. Almost all of the spring flowering bulbs will do fairly well if planted in November, the one exception, perhaps, being Dutch hyacinths. Even these latter I have known to give as good results planted in November if the weather is fine late in the season.

Give late planted bulbs some protective material to prevent the bulbs from lifting or heaving from their positions during very severe weather. This protection should not be put on until moderately severe weather sets in, after the ground has been slightly frozen or after the first snowfall. About the end of November or early in December is a good time, before the heavy snowfalls commence.

COVERING MATERIAL

A mulch of long, strawy manure, straw, or long grass, about three or four inches in depth, can be used for a covering. Green pine boughs can be placed over the mulch to avoid the unsightly appearance of the mulch. The pine boughs of themselves, or coarse garden trimmings, such as old raspberry canes, etc., with a few leaves sprinkled among them, makes a good winter protection for bulbs or plants of any kind. Leaves of themselves settle down too closely oftentimes or are blown away altogether, and are more difficult to remove in spring without injury to the bulbs.

PROTECTING ROSES

Climbing and rambler roses in any

section of Ontario outside of the Niagara district are of questionable hardiness, and are safest if protected slightly during winter and early spring. The best and easiest method, as a rule, is to take the growth down from the trellis and lay it down below the snow line and as close to the ground as possible without injuring the growth. It may be necessary to tie the growth together to keep it in place.

This work should be done about the first or second week in November. About the end of November or early in December, two or three inches of straw or strawy manure, sufficient to cover the growth, can be placed over them. Pine boughs can be used also for covering, with perhaps a few leaves strewed among them.

DANGER FROM MICE

Do not use corn stalks for covering roses or plants of any kind in winter, as they are too great an attraction for mice, the mice oftentimes being more destructive to the roses than the severe weather. By not putting on the covering until quite late, perhaps after the first snowfall in December, there is less danger of a visit from mice as they are usually settled in their winter quarters before that time.

BUSH ROSES

The hybrid perpetual roses, especially those budded on manetti or briar stocks, should be banked around the bottom of the growth with soil. This banking with earth covers a weak part of the budded or worked rose bush, viz., the junction between the root stock and the



A Climbing Rose Bush Laid Down Ready for its Winter Covering



A Climbing Rose Bush Covered with Strawy Manure for the Winter

graft or bud. The soil can be taken from a foot from and around the rose bush and banked eight or ten inches in width and height around the bottom of the bush, making a sharp, conical shaped mound so as to pitch off the moisture as much as possible.

About the middle of December a mulch of a few inches of partly rotted barnyard manure may be placed around the bush on top of the earth covering. This mulch can be dug in among the bushes in spring for a fertilizer. Remove the covering by degrees about end of March or early in April. All roses should be pruned in early spring, just as growth buds are starting. Fall pruning is not desirable.

Hybrid tea and tea roses are more ten-

der than the hybrid perpetual species. In addition to the covering recommended for the last named, the growth of these should be tied together to a stout stake in a pyramidal form and the top thatched with long straw an inch or two in thickness, starting from the bottom so that if several layers of straw are used the top layer will overlap the lower layer, so as to pitch off all moisture. The material should not be tied on too tightly. Two or three layers of the Chinese tea matting that is used for covering tea chests when imported, makes a good covering for roses and tender shrubs in winter. Remove the covering in the spring as mentioned for climbing roses.

Covering roses with earth entirely is not advisable as the canes are apt to rot and mildew if the weather is at all broken during the winter. Put a good covering of snow over the roses during the winter if possible. It is one of the best plant protectors there is but it is unreliable in late winter and early spring when protection is most needed, when alternate freezing and thawing is most trying to plant life. The late winter and early spring season is when artificial covering is of the most benefit.

The hot sun on early spring days, with perhaps twenty or thirty degrees of frost at night, are the most trying conditions for tender plant life. Keep the covering on roses and plants until the weather becomes warm and settled, in fact, until the growth buds are beginning to show signs of spring life, about the first week in April.

Tender shrubs can be protected in the same way as recommended for hybrid tea and tea roses. A few dry leaves placed around tender roses early in the winter and an empty sugar barrel inverted over them is a good protection. Holes should be bored in the side of the barrel to admit air, but the bottom of

the barrel, or the top now it is inverted, should be left sound and intact to exclude moisture. Barrels are unsightly, however, as plant protectors. A covering of pine boughs will often be sufficient protection and is not unsightly looking if neatly tied around the plants.

Success With Bulbs

Thomas Jackson, M.A.C., Winnipeg

When bulbs are to be grown in pots for winter blooming in the house, the bulbs should be potted as soon as they can be secured, which is usually sometime between August and November. The best potting compost is composed of fibrous loam and well rotted manure in about equal parts, mixed with some coarse sand.

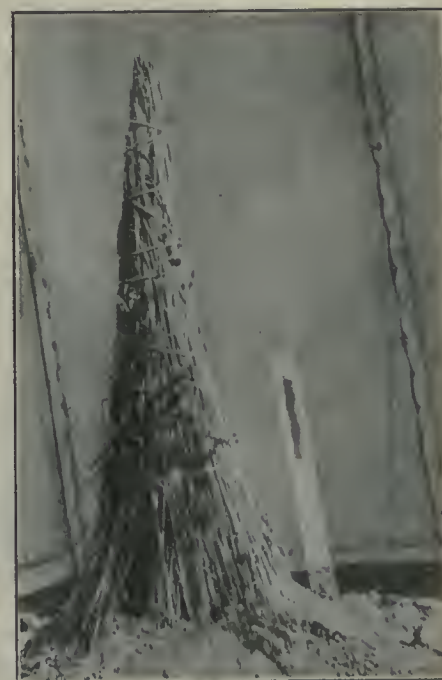
Place a piece of hollow crock in the bottom of the flower pot and cover with a little coarse fibre and manure. The pots should be filled lightly and the bulb pressed into the soil so that its base is firmly fixed. About one-third of the bulb should remain above the soil. When this compost cannot be obtained, good open garden soil may be used.

The more slowly hyacinths are forced the finer and more lasting will be the bloom. Single hyacinths are handsome and force better than the double forms, although a few of the latter may be recommended for general use. After the potting is done give the bulb a good watering, then place them in the basement or in any other place where the temperature is fairly low, about 40 degrees. Cover them with about six inches of sand or ashes, sand being preferred. Leave them under the sand about eight or ten weeks, when all being well they



A Rose Bush

Banked and covered for the Winter.



A Hybrid Tea Rose

Tied and thatched with straw for the Winter.

should be well rooted.

Examine them all and pick out those that are most forward, say those which have an inch of top growth. Place them in a window in a subdued light for a few days, and after that in all the light available, in a temperature anywhere between fifty and sixty degrees. The remainder should be watered if necessary and covered up as before. These, of course, should be looked over occasionally, and the forward ones taken out. By doing this you will be able to have bulbs in flower for a much longer period than you otherwise would.

Prepare for Sweet Peas

J. Edwards, Winnipeg, Man.

To obtain the best results with sweet peas the ground should be prepared in the fall. A good plan is, to dig a trench a foot deep, and place in the bottom three inches of well-decayed manure. On the top of this put four inches of soil and thoroughly mix. The remainder of the soil should then be placed on top and levelled.

On new ground and in places where the soil is very rich, it is advisable to eliminate the manure for a year or two. If the soil is too strong, the buds will have a tendency to drop off.

The Cultivation of Tulips

When preparing the beds for tulips first the soil should be well dug and worked, then taken out to a depth of three or four inches and the surface made quite level with a fine rake; then the bulbs are planted and afterwards the removed soil is carefully brought over them again.

To have a brilliant effect, the bulbs must be planted rather thick so as to be four or five inches apart, according to their size; they only require a thin

covering of fir boughs; on sandy, light soils this protecting material will prevent the soil from being blown away in winter or in spring when dry winds are prevalent; as a matter of course this management will be less necessary on heavy, stiff soils. On no account should

tulips be planted two years in succession on the same spot; they yearly want fresh soil and it is absolutely necessary to dig out the soil and refill the beds with fresh soil from a different part of the garden if the same beds or borders are again planted with them.

An Easily Constructed Private Greenhouse

Chester Forster, Galt, Ont.

Many a person has a back veranda to his house, which, with but little effort, can be converted into a private greenhouse. Often it is used as a wood-shed or storeroom. A very good greenhouse can be constructed from such a veranda and without much expense, when one may grow flowers of all kinds and enjoy the pleasures of a sunbath at any time of the year.

The accompanying illustration indicates what can be done in this line. Three years ago this spring there was nothing but a veranda with a rickety old floor, and heaps of rubbish. Now, I have a nice little greenhouse, twenty feet by eight feet in which I can grow almost anything.

HOW IT IS BUILT

The foundation is of concrete, mixed in the proportion of seven parts of coarse gravel to one of cement. The wall is of hollow concrete blocks, eight inches by ten inches by twenty inches. It is two feet high above the foundation. On top of this wall is a concrete sill projecting an inch and a half on the outside. We made a mould to make the sill in, and held it in place against the wall by means of stakes driven into the ground. The proportion of three parts of sharp sand to one of cement is right for the sill.

A narrow board was placed on the sill, and the uprights, which are four feet apart and two and a half feet high, were nailed to the board.

The plate, which is four inches wide, was nailed on top of these uprights, and was bevelled on the inside to carry off any water than might run down the inside of the glass.

The rafters, four feet long—the roof of the verandah covers the rest—are about an inch and a half by two inches, with grooves for the glass. They should be so placed that, when the glass is put in, it may project over the edge of the plate without leaving a big crack.

When putting in the glass, we used plenty of glazier's points and drove one inch staples obliquely into the rafters near the plate to prevent the glass from slipping out. The roof-glass projects no more than three-sixteenths of an inch; any more and the glass would be broken by the first icicles. We used putty for appearance sake, but mastic is more serviceable.

The roof has a rise of eight inches to the foot. This is plenty for a short rafter. A longer rafter would require more pitch.

The sides consist of sash, which are hinged at the top and swing outwards. A small hinge is fastened to the centre of the bottom rail of each sash, and to a hardwood strip about three feet long. By pushing out on these strips, the windows are opened. These swinging windows together with the doors opening into the house and the back shed, provide sufficient ventilation.



Crescent Road, Rosedale, Toronto, where the Lawns and Gardens Form one of the Sights of the City.

four inches deep, large about six inches, that is, with that many inches of solid earth above them.

Tastes differ as to the most effective method of planting. Some prefer elaborate patterns, but these usually seem to me stiff, and do not always give the satisfaction expected. Better results are produced by planting in rows of contrasting colors, or when bulbs of the same color are grouped together. Often a bed of mixed colors gives as much satisfaction as the most elaborate arrangement. However you may decide to arrange the bulbs, plant thickly, as a small, well-filled bed is much more effective than

a larger bed with scattered bloom.

SUCCESION OF BLOOM

To make the most of your bed you will wish to secure a succession of flowers. To effect this you must plant three kinds which bloom at different times. For earliest, get the lovely white Snowdrops, which literally force their way through the snow. These are closely followed by the blue Scillas and Chronodoxas, after which come crocuses, hyacinths, and early tulips in various colors. The late tulips and narcissus of different kinds bring up the rear, and continue the blooming period until it is time to plant the annuals and tender budding plants.

November Work in the Flower Garden

Wm. Hunt, O. A. C., Guelph, Ont.

Clear off all rubbish from the flower beds and borders and burn it, except from the perennial border. Leave the last-named just as the season and Nature leaves it, except perhaps to cut the tops off from a few of the very tall perennials such as Larkspur, Helenium, Sunflower and Hollyhocks. The tops of these make ideal protective material for laying over any tender biennials or perennials, such as young Hollyhocks, Canterbury Bells, or tender rose bushes or shrubs. These trimmings help to hold and conserve the snow for protective purposes splendidly. Do not dig the perennial border in the autumn.

Dig up and manure all vacant flower beds and borders. If the ground is at all heavy or clayey throw the soil into

ridges. All ground should be thrown up roughly when digging for winter. Dig it so that all surface water can drain away readily.

LEAF MOULD

Gather a lot of clean maple or oak leaves for making leaf mould for potting. Put about a foot in depth of the damp leaves packed firmly into an old packing case, or in a pile, then put some good garden soil two or three inches deep all over the layer of leaves. The soil is to prevent too much heating or fermentation. Put in another layer of leaves and so on until sufficient has been obtained, leaving a layer of soil for a top layer. The mixture should be well watered if leaves are dry. If this compost is turned over a few times and kept moist, next season it will make a splendid leaf compost for mixing with potting soil for ferns, begonias, coleus, and similar plants.

Get a supply of potting soil into the cellar or under cover where it is available for winter and early spring work. Keep all potting soils, sand, and composts covered up securely from animals at all times.

GLADIOLI CORMS

The corms or bulbs of gladioli should be partially dried before storing for winter. Spread them out in boxes three or four inches only in depth and put them in a fairly dry, cool cellar or room at a temperature of about 40 degrees during winter. If the cellar is very damp, place them on shelves or put them in baskets and hang them up to the joists. Cover the young small corms up in dry sand in boxes.

Dry dahlia roots slightly in a shed away from frost for a week or so before storing for winter. A rather moist, cool cellar, temperature from 35 degrees to 40 degrees, will suit dahlia roots for the winter. Avoid getting the roots frosted in the slightest degree.

Canna roots should be stored in a warm, not too moist and not too dry a



A Cement Urn for the Garden

This inexpensive, easily constructed cement urn was made out of four wheel barrow loads of sand with some stone fillers, and two sacks of cement. The form was made out of discarded sidewalk plank, and required five hours to make. It is four feet high and, as can be seen, contains the oldest known species of natural climber: the son of Mr. Joseph A. Brown, the president of the Durham, Ont., Horticultural Society.

place during winter in a temperature of from 45 degrees to 50 degrees, as they are of a more tropical nature than dahlias and gladioli. It may be necessary to give them a sprinkle of water every few weeks during winter if the place they are in is very dry. It is best to leave a little soil attached to the roots when digging them. Florists usually keep these roots under the greenhouse benches, so that somewhat similar conditions in the cellar should be given so far as temperature and moisture are concerned.

Plants of geraniums that have been growing in flower beds or borders all summer and the stems not yet frozen can be dug up without injuring the roots and will make nice plants if treated right. Cut the top growth well back to where the growth is of medium texture not too soft and sappy or too woody and hard. Cut off any leaves left on the stems. Shorten the roots about one half.

Pot the plants in sharp, clean sand or sandy soil, singly in small pots—3½ or 4 inch pots or plant them thickly in a shallow, well-drained box four inches deep, in sand or sandy soil. A box 10 inches by 12 inches will hold a dozen or more medium-sized plants. Water the plants well once to moisten all the sand or soil. Place the box in the window and keep the sand moist, not wet.

In a few weeks, when new roots have developed, the plants can be potted into small pots in better soil and grown on. These will make nice plants by spring. Or the plants can be placed in the cellar in the sand until spring in a temperature of about 45 degrees to 50 degrees. If placed in the cellar the sand should be kept barely moist, not wet.



A Canna in an Owen Sound Garden

The canna here shown is ten feet four inches high. It was grown in the garden of Dr. J. Wycliffe Marshall, a member of the Owen Sound Horticultural Society. This canna was started in the window in March. The first flowers opened July 3rd. It bloomed profusely until frost cut it down.

Fall Planting of Bulbs

C. Mortimer Bezzo, Berlin

IF we desire to have our gardens bright in the spring with spring flowering bulbs the bulbs must be planted in the fall. During the long winter months they will be preparing for the gorgeous display in the spring.

Hardy bulbs as a rule give best results in a good sandy loam but will give good results in any soil that is well drained. They require an abundant supply of water which is usually forthcoming during the early spring; but good drainage is absolutely necessary, for if the water is allowed to collect around them they will rot. If the ground is low or heavy raise the bed to allow the water to drain away. When the soil is heavy, if sand can be obtained, it would be a good plan to add about one-third to make it more friable. Bulbs have a better opportunity to multiply and grow to a better size when not held in the iron grip that is characteristic of heavy clay soil, especially when it is dry. For those who live near the woods where wood dirt can be obtained, a liberal quantity of this mixed thoroughly through the soil will be of great benefit.

Bulbs as a rule do not require a very

rich soil, although a soil fairly well supplied with plant food is an advantage, and will result in the production of larger flowers. Fertilizer should never be applied in the form of fresh manure. If manure is used it should be so well rotted that it is indistinguishable from earth. But where fresh barnyard fertilizer is used it should be dug in the ground in the spring so that it may have plenty of time to rot before bulb planting time. Soil that has been fertilized for some years previous will be in ideal condition for this class of flowers. But if the soil is poor and must be fertilized, use bone-meal. If this is not obtainable and manure is the only fertilizer on hand, plant the bulbs in the usual way and spread the manure over the top of the ground. This will serve the double purpose of winter protection and fertilizer, the rains of fall and melting snow of early spring will wash the nutriment down into the soil.

WINTER PROTECTION

Early spring flowering bulbs as a rule are quite hardy but there is a decided advantage in giving them winter protection. This protection is more necessary during a mild winter than during a severe one. If the ground freezes early in the winter and remains in the grip of snow and frost until released by the sunshine of March or April the bulbs will come through without any damage. But where the winters are variable the continual expanding and contracting of the bulb caused by the alternate freezing and thawing will burst the cells of the bulb and break the roots and in many cases heave the bulb out of the ground unless planted very deep. A covering of three or four inches of straw, manure, or other coarse litter will prevent this, not by keeping the frost out of the ground, but by keeping it in, when once it enters until spring. Late planted bulbs should be covered as soon as set out in order to allow root formation to take place as much as possible before the frost reaches them. This is important from the standpoint of earliness of bloom as well as the proper development of the flower.

WHAT TO BUY

One of the most difficult things for the new beginner to decide is just what kind of bulbs to get. Sometimes the pocket hook is limited or the space for planting is small; in either case it is difficult to know what to buy in order to obtain the best results from the money expended and the space of ground at the disposal of the planter. It is also difficult to advise the planter without knowing all the circumstances. Some who have a dollar to spend would like to buy everything. They look through the cata-



La Reine Tulips Closing up for the Night

logue at the great variety of good things offered and become confused and finally end by buying a dozen or fifteen different varieties with their dollar.

This is a great mistake. A person who has only one dollar to spend ought to buy a very few varieties, but as many of each variety as possible. When bought by the dozen an average of about fifteen can be bought for the above sum of money, whereas if single bulbs are purchased the average number would be only 25 or 30 for the same amount. One tulip in the garden will attract attention, but only because it contrasts with the other objects around it; and looks too much like a lone sentinel to be effective. One dozen will attract attention because of their own exquisite beauty, while one hundred will make a man wake up and take notice unless he is immune from the grander sights of earth.

Hyacinths in Water

Thomas Jackson, M.A.C., Winnipeg

Some of the single hyacinths may be grown very satisfactorily in water. Special glasses for this purpose may be bought from the seedsmen. They should be filled with pure water, preferably rain water, which is the best, and the bulbs so placed that the base of the bulb barely touches the water. They are then stored in a dark, cool closet or cellar, until the roots are developed, when they may be brought into the light.

A subdued light is the best for a few days, when they may be given all the light possible. Change the water about once a month or oftener if necessary, providing it looks cloudy or smells badly. Charcoal may be used with advantage, as it helps to keep the water sweet and absorbs all impurities. It is not necessary, however, if the water is fresh and pure. An airy, sunny situation and a temperature of about 60 degrees regularly maintained will insure the best results.



A Pink and White Amaryllis-Belladonna Lily

Grown by Walter T. Ross, Secretary, Pieter, Ont., Horticultural Society.

Insects that Attack Vegetables*

L. Caesar, B.S.A., O.A.C., Guelph, Ont.

AS there are more than 100 insects that from time to time are found doing considerable damage to vegetables it is impossible to discuss these all in one paper. I shall, therefore, devote my attention only to a few of the most troublesome, viz., cutworms, flea-beetles, asparagus beetles, the striped cucumber beetle, root maggots, cabbage worm, wire worms, and aphids. A good account of most of these and of many other insects is to be found in "Insects Injurious to Vegetables," published by Orange Judd Co., and costing \$1.50. (This may be purchased through The Canadian Horticulturist—Editor.) Every vegetable grower should have this book, and also Bulletin No. 52 from the Department of Agriculture, Ottawa, and Bulletin No. 171 from the Department of Agriculture, Toronto. The latter bulletin contains also an up-to-date account of the diseases of vegetables with means of prevention.

There are certain farm practices that are employed by many but not by all vegetable growers, and that are important in keeping not only insects but what is also equally as important, plant diseases, in check.

DESTRUCTION OF RUBBISH

(1) Destroy all remnants of crops and all rubbish so far as possible each fall. This should be done by gathering and burning, and not by ploughing down as the latter method would not destroy fungus or other diseases. By burning the vines, leaves and other remnants of plants, we not only destroy any insects, like borers and miners that may be concealed inside the leaves, stems or roots, and the eggs that are laid by plant lice and other insects on the plants, but we also remove the natural hiding places for large numbers. Keeping fence corners mowed and clean, and having as little brush as possible on or around the field or garden will also assist in the same way.

FALL PLOUGHING

(2) The turning over of the soil in autumn buries deeply numerous insects that pass the winter in the egg or pupal stage on or near the surface of the ground. Many of these will be unable to escape. Again many other insects, such as wireworms and white grubs, are by this means turned up to the sun, rain and frost, and these, along with the stirring of the soil, destroy countless numbers. Furthermore, thorough working of the ground in spring supplements this fall ploughing and destroys its quota.

(3) It is but natural that most species

of insects should pass the winter at or near the place where they found abundance of food the previous year, and that they should search for it in the same place the next season. Some insects, in fact, are without wings and can only move from place to place slowly.

Keeping these things in mind, it follows that we should not plant the same kind of crop, or another crop that is attacked by the same kind of insects, two years in succession in the same place, but should replace it by a crop of a totally different kind. This is also better for the soil and so for the crop itself, quite apart from insects and plant diseases; because one kind of plant takes one substance out of the soil, while another takes another; again one crop is a deep feeder, sending its roots far down, while another feeds near the surface. By rotating crops we do much to prevent the rapid exhaustion of the food supply. There may, of course, be an occasional exception to this rule, but such exceptions are rare.

(4) The richer the soil is kept and the better cultivated to preserve moisture, the more thrifty the plants will be and the better able to withstand insect attacks.

THE INSECTS

Just as with anything else, the more we know about insects the more intelligently and economically we shall be able to deal with them. From this standpoint the teaching of Nature Study in our high and public schools should give the rising generation an advantage over the present.

There are, however, a few very important points about insects that we can all readily learn. The first and most important of these is that insects are divided into two great classes—biting insects and sucking insects. The easiest and simplest way for most people to determine to which class any species belongs is to observe whether in feeding the insect removes the tissues leaving holes or ragged edges. If so, it is a biting insect. If on the other hand none of the tissues are removed and the feeding causes the leaves or plants to become discolored and sickly the insect is a sucking one.

It stands to reason that if the part of the plant that a biting insect feeds on is covered with a deadly poison, like arsenate of lead or Paris green, the insect will devour this and be killed. On the contrary sucking insects cannot be killed by any poison of this kind because they insert their sharp beaks through the skin of the plant and suck the juice from within, thus never having any reason for absorbing the poison. Sucking in-

sects accordingly must be destroyed by being actually hit by some substance that will kill them by coming in contact with their body. The best known of such substances in the case of insects attacking vegetables are kerosene emulsion, whale oil soap, tobacco decoctions, pyrethrum powder and common soap suds. To get good results with these mixtures on some kinds of insects it is necessary to apply them with considerable force while the insects are still young and their bodies soft and unprotected by wings or wing covers.

INSECT STAGES

Insects during the course of their life history pass through several quite different stages. In most cases there is the egg, which hatches into the tiny grub or caterpillar or maggot. When this is full grown it in turn changes into the pupa, usually a smooth, brownish cigar-shaped creature; and after a time from this there comes forth the winged adult which will lay eggs and thus start the same round again. Of these stages, it is, as a rule, only in the second or caterpillar stage that injury is done. Hence when we see a large green tomato worm disappear, or a horde of cutworms suddenly vanish, we may expect that they have merely entered the ground to pupate and that there will be no more damage from them that season.

A number of biting insects, like grasshoppers, and many sucking insects, such as leaf-hoppers and leaf bugs, pass through only three stages: The egg, nymph and adult; the nymph differing from the adult chiefly by its smaller size and the absence of wings. Such insects feed in both the later stages. With these remarks which, though commonplace to many, may yet be new to a number, and therefore useful to them, we shall pass to a consideration of the very destructive insects mentioned in the introductory paragraph.

(To be continued)

The Cabbage Worm

Prof. H. A. Surface.

It will not render cabbage unfit for use to apply paris green to it. If you use one-half pound of paris green in fifty gallons of water sprayed on cabbage, no evil results can possibly ensue. It would be better to apply some soap with it to make it stick. Also, you can use two pounds of arsenate of lead in place of the paris green. This will stick better, and I much prefer it.

Practically all truck growers now use arsenical poison on cabbage and are satisfied with the results, as it kills the worms, although, of course, it does not kill plant lice, and is not recommended

*An extract from an address delivered at the recent convention in London, Ont., of the Ontario Vegetable Growers' Association.



Some of the Track Farms in the Bow River Valley, Alberta, brought into Cultivation and then sold to British Settlers by the Canadian Pacific Railway

A departure in colonization methods that has attracted wide attention is the ready made farms scheme placed before the British farmer last year by Sir Thomas Shaughnessy, president of the Canadian Pacific Railway. The proposition was this: "On an irrigated farm of 80 to 160 acres we will break and sow a crop of 50 acres, we will build a three roomed house and a barn, fence your farm and drill a well for you before you leave the Old Country." When the first thirty farms were put on the market in England 1,100 British farmers sent in their applications. On many of these farms vegetables form the principal crop. The scheme is proving a success.

for this. For aphids or plant lice, use one pound of Whale Oil Soap in five gallons of water.

"Cabbage heads grow from within outward; thus they are constantly throw-

ing out or spreading the leaves to which the poison has been applied. If it headed by throwing the outer leaves inward, there would be greater danger of poisoning."

Growing Early Potatoes *

F. F. Reeves, Humber Bay, Ont.

IN growing a crop of early potatoes I prefer a sandy loam facing south or south east and sheltered as much as possible from north winds. As the majority of gardeners use green manure it is best to plow in a good coat the previous fall, as the manure will then be well rotted and incorporated in the soil by spring. If the manure is plowed in the spring it has two bad faults; first, it has a tendency to cause the potatoes to scab, and second, if we have a dry, hot summer, it causes the land to be too loose and consequently dry out far sooner than it would were the land more solid.

The variety that is the most popular in the vicinity of Toronto is the Ohio. The reasons for this are generally known. It combines two features that commend themselves to the grower. One is its extreme earliness and another that when you start to dig, the tubers are practically all marketable. Some growers are using the Eureka. It is a few days later, but when it comes in it is a heavier cropper.

Many growers start part of their early potatoes in a spent frame or greenhouse. We usually start ours the first or second week in March. In forcing for earliness it is well to remember that a whole potato will crop earlier and heavier than a cut one. I prefer them the size of a hen's egg. The potatoes should be cut to the size wanted before placing for sprouting.

We usually lay boards on the bench or frame where we want to sprout the potatoes, sprinkle about an inch of soil on the boards, plane the potatoes (cut down) on the boards as close as they will lie, and cover them nicely with soil. The boards are used to prevent the roots taking too deep a hold on the soil. If allowed to do this they receive a check when taken up. Care must be taken in planting to see that the roots and sprouts are not broken.

SPRING CULTIVATION

As soon as the ground is fit to get on in the spring it should be well disced and harrowed. Shallow furrows, thirty inches to three feet apart, should then be run out if the furrows are left open for a few days. This is a great advan-

tage as it enables the sun to warm the soil.

The date of planting varies in different sections of Ontario. It should be done as early as one can get on the land without packing it. If this is not done the sets that happen to fall-sprout have the advantage of fully a week over the others and, to a large extent, this is the cause of the crop coming up irregularly.

CAREFUL CULTIVATION

When the sets are in, go along the rows with a hoe or rake and pull sufficient soil over them to cover them nicely. In about two weeks the weeds will be showing. It will be wise then to start the scuffling going. The scuffling should be done every week until the tops are large enough for moulding. After moulding it will only be necessary to pull out the large weeds. Great care should be taken in scuffling not to go deep close to the rows. If the potato roots are disturbed it means a great loss in the crop.

In growing potatoes, as is the case with all other garden crops, insect pests and blights have to be taken into careful consideration. One has to get after them early and stay right with them. As far as the ordinary potato bug is concerned the liberal use of paris green will keep them in check. Many growers use the pure paris green put on dry with a paris green gun. Others use a solution of one ounce paris green to three gallons water put on with a watering pot or spray machine.

*A paper read at the recent convention in London, Ont., of the Ontario Vegetable Growers' Association.

The Canadian Horticulturist

Published by The Horticultural
Publishing Company, Limited

PETERBORO, ONTARIO



The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF THE ONTARIO, QUEBEC, NEW
BRUNSWICK AND PRINCE EDWARD ISLAND
FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription price in Canada and Great Britain, 60 cents a year; two years, \$1.00. For United States and local subscriptions in Peterboro, (not called for at the Post Office) 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than \$1.00.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address.—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Copy received up to the 18th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

7. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT.

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1909. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1909.....9,456	January, 1910.....8,925
February, 1909.....9,310	February, 1910.....8,967
March, 1909.....9,405	March, 1910.....9,178
April, 1909.....9,482	April, 1910.....9,410
May, 1909.....9,172	May, 1910.....9,505
June, 1909.....8,891	June, 1910.....9,723
July, 1909.....8,447	July, 1910.....9,300
August, 1909.....8,570	August, 1910.....8,832
September, 1909.....8,605	September, 1910.....8,776
October, 1909.....8,675	October, 1910.....8,784
November, 1909.....8,750	
December, 1909.....8,875	

Total for the year .107,638

Average each issue in 1907, 6,627

" " " " 1908, 8,695

" " " " 1909, 8,970

Sworn detailed statements will be mailed upon application.

OUR PROTECTIVE POLICY.

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST,

PETERBORO, ONTARIO

EDITORIAL

ONTARIO'S APPLE INDUSTRY

The remarkable feature about the apple industry in Ontario is that instead of being on the decline it should be on the increase. Ontario is destined to grow more and more apples. This province cannot compete with the west in the growing of grain or the production of feeding cattle. It can grow apples to perfection and profitably.

Every person who has had any experience admits that when the average apple orchard is given proper care it can be made to yield large returns. One of the demonstration orchards in Simcoe county this year, which for years, in its neglected state, had not produced over fifty dollars worth of fruit in a season, netted returns of \$300 for one acre. A similar orchard in Dundas county produced \$400 worth of fruit. Scores of private fruit growers in Ontario, who have discovered the immense possibilities of their orchards, are increasing their orchard areas and dropping other less profitable branches of farm work.

The decline is due to but one reason: Ontario farmers do not realize how profitable their orchards may be made. They need to be shown. The Ontario Department of Agriculture has done good work of an educational nature as far as it has gone. It has not gone far enough. British Columbia has voted \$10,000 for the establishment of demonstration orchards in all the principal fruit growing sections of that province. Ontario should make an even larger appropriation for similar work. We should not repeat the mistake of spending one dollar where five dollars is required. The decline in our apple industry is due to the fact that we have been content to put forth but feeble efforts to effect improvement. Within five years the whole situation can be changed if the Ontario Department of Agriculture, backed up by the fruit growers organizations, will but put forth the necessary effort. Hon. Mr. Duff can make a name for himself if he will but grasp this opportunity.

FRUIT PILFERING

The intimation made by one of the chief officials of an express company, to the representative of the fruit growers who recently drew his attention to some particularly bad cases of fruit pilfering on the part of the employees of the companies, that the quantity stolen was so small as to be almost beneath notice and blaming the fruit growers for poor packing, indicates that the heads of the companies are even more responsible than the employees for the prevailing unsatisfactory conditions. As long as the heads of the companies make light of such charges laxity on the part of the employees may be expected.

It is fortunate that the express companies have been placed under the jurisdiction of the Railway Commission. The fruit growers now have a better chance to press such matters as this to a finish. It should be possible for them to obtain rulings from the Railway Commission that will make the heads of the express companies realize that this matter cannot be trifled with. A few prosecutions in police courts of employees caught stealing fruit will bring about an improvement among the employees. The express companies would be doing only their duty were they to undertake the prosecution of those of their em-

ployees who are found guilty of these practices.

THE UNSIGHTLY BILL BOARD

Although the efforts of the Ontario Horticultural Association to induce the Ontario Legislature to grant municipalities the power to control bill boards and bill board advertising within their limits did not prove successful, this is no reason why the matter should be allowed to drop. Even if the members of the Legislature may be personally opposed to legislation of this nature they cannot safely withhold from municipalities the power to deal with questions that properly lie within their jurisdiction.

In the United States the American Civic Association has prepared a model bill dealing with this matter. The regulation of bill boards is a common practice in many of the large cities in Europe. Arrangements should be made this month by the members of the Ontario Horticultural Association, at the time of their annual convention in Toronto for a continuation of their efforts in this direction.

The uncertainty of life has been brought home to us very clearly, during the past year, by the passing away of so many who have been prominent in horticultural affairs in Canada. It is only about a year since we lost Mr. John S. Pearce, Superintendent of Parks, London, Ontario, and a director of the Ontario Horticultural Association. Later there passed into the great beyond Mr. Murray Pettit, of Winoona, Ontario, one of the foremost fruit growers of the Dominion. More recently we have lost Mr. R. C. Steele, of the Steel Briggs Seed Co., of Toronto; Mr. H. S. Peart, the Director of the Horticultural Experiment Station at Jordan Harbor, Ontario; and Mr. W. E. Wellington, of the firm of Stone & Wellington, nurserymen, and a past president of the Ontario Fruit Growers' Association, whose death was announced in our last issue. This month we record the death of Mr. A. M. Smith, of St. Catharines, the only surviving charter member of the Ontario Fruit Growers' Association. Such a succession of deaths may well lead each of us to ask ourselves in all earnestness if we are prepared to meet the Great Judge of us all.

An effort should be made at the approaching convention in Toronto of the Ontario Horticultural Association to secure a report of the work undertaken this year by the Toronto Horticultural Society in the matter of civic improvement. During the past season this society adopted the block or square system of improvement that has proved so successful in portions of the United States. Prizes were offered for the best lawns and gardens in specified blocks in the city. It is understood that the work has met with a gratifying degree of success. If this is the case other societies in the province should be able to introduce this system or modifications of it in their respective localities. The approaching convention will offer a splendid opportunity for the consideration of this question.

Evidence of how far paternalism in municipal matters can be carried has been afforded recently by the discovery that in the city of Toronto the civic by-laws relating to the construction of modern greenhouses are so far out of date that it is impossible for a florist to erect the modern type of light greenhouse construction that is being almost universally followed throughout Canada and the United States.

Were the florists compelled to construct the type of greenhouse called for by the civic regulations they would have to go back many years and adopt forms of construction that have long been discarded. Well meant restrictions often prove ridiculous when their enforcement is left in the hands of incompetent officials. This is a case in point. Toronto will continue to look ridiculous until this by-law has been amended.

The fruit growers of British Columbia, Ontario, and New Brunswick should put forth special efforts this month to make the fruit exhibitions that will be held in each of these provinces, a great success. These exhibitions not only set new standards in quality and methods of packing, but serve to arouse a greater interest in fruit growing and to stimulate a general improvement. Their success depends upon the support given by the individual growers. Let the growers of each province, therefore, do their part this month by attending their nearby exhibitions.

Eastern fruit growers spend considerable time discussing the wonderful strides that have been made by the fruit growers of British Columbia and the Pacific coast states. When we realize that as soon as we show the same spirit of enterprise, push and confidence we can accomplish even greater results we will begin to bestir ourselves more than we have.

PUBLISHER'S DESK

What Some Societies Might Do

During November the various Horticultural Societies of Ontario will hold their annual meetings. To those which have been in the habit of subscribing to THE CANADIAN HORTICULTURIST for all of their members we desire to express our hearty thanks. Were it not for these societies we would have been unable to have enlarged and improved THE CANADIAN HORTICULTURIST as we have. They furnish over one half of our circulation.

There are a few societies that send to the States for horticultural publications instead of taking THE CANADIAN HORTICULTURIST. In doing so they are perfectly within their rights. We would like to point out, however, that THE CANADIAN HORTICULTURIST is the only paper which has continuously and persistently worked in the interests of the horticultural societies of Ontario. That it is the only publication that gives publicity to matters affecting the interests of our horticultural societies: That it is the only medium

through which the officers and members of our societies are kept in touch with the work that is being done in this country and assisted in such matters as securing increased government grants, modifications in the legislation affecting societies and furnished with reliable information concerning Canadian conditions.

Some societies contend that they cannot afford to give THE CANADIAN HORTICULTURIST as a premium to their members. How is it then that fully two-thirds of the societies in the province are able to afford such an expenditure and are pleased with the results they obtain? Every horticultural society has two duties to perform. One pertains directly to its local affairs. The other comprises its relations to the larger questions of provincial and national horticultural interest.

We venture to say that there is not a horticultural society in Ontario that would not feel that it would be a public calamity were there no such paper in Canada as THE CANADIAN HORTICULTURIST. Yet there are a number of societies that do nothing to assist THE CANADIAN HORTICULTURIST.

As already stated all that enables us to publish THE CANADIAN HORTICULTURIST in its present form is the support we are receiving from the majority of the horticultural societies of Ontario. Did the other societies support us to the same degree we would be able to greatly enlarge and improve THE CANADIAN HORTICULTURIST and thereby still further assist all of our societies. We feel that if more of our societies would look at the question in this light they would fall in line and thereby assist us in our efforts to improve and advance the horticultural interests of the Dominion.

We are planning to make THE CANADIAN HORTICULTURIST during the coming year of still greater value to all of our societies. We feel that those societies that subscribe for THE CANADIAN HORTICULTURIST for all of their members will receive splendid value for their money and that their members will greatly benefit by receiving reliable information concerning our Canadian conditions as furnished by our own Canadian authorities.

We have decided to discontinue the practice of publishing free readers for advertisers. In a monthly publication like THE CANADIAN HORTICULTURIST our space is so restricted it means that every reading notice that is published crowds out some important piece of general information. As all our advertisers are to be treated alike in this respect we do not expect that any of them will take an exception to our stand in this matter. It means that our reading columns will be made more interesting and that all our advertisers will thus be benefited.

Death of Pioneer Fruit Grower

The death took place on October 19th of Mr. A. M. Smith, of St. Catharines, who was the only surviving charter member of the Ontario Fruit Growers' Association, formed fifty years ago. Mr. Smith was 78 years old, having been born on September 24, 1832.



The Late A. M. Smith

At the fiftieth anniversary of the Ontario Fruit Growers' Association held in Toronto last November, Mr. Smith was presented with a purse of \$175 and with an illuminated address. The address was read on behalf of the association by Mr. Murray Pettit, of Winona, a prominent fruit grower and officer of the association, who also has since passed away.

As a pioneer fruit grower and nurseryman, the late Mr. Smith was largely instrumental in the planting of many of the splendid orchards now found throughout Ontario. He was generally popular and respected everywhere for his integrity and singleness of purpose.

The Canadian Pacific Railway Company has granted a one way first class fare to the Canadian National Apple Show in Vancouver from all points in the Dominion of Canada. In addition it has granted selling dates in advance of the regular selling dates to the public for the benefit of the exhibitors.

OUR NORTHERN GROWN STOCK HAS PROVED ITS MERITS



Manor Richelieu, Murray Bay, Que.

Our Selected Northern Grown Stock, which was used to ornament the grounds in the above illustration, has succeeded splendidly, even in this extreme climate. Our stock is used by those who demand the best. Give us a trial order. We will satisfy you. Our Catalogue free for the asking.

THE CANADIAN NURSERY CO., Ltd., 10 Phillips Place, Montreal, Que.

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ers. The peach shipments to Great Britain will be fully discussed by Messrs. Dobson of Hamilton, Onslow, of Niagara, R. Thompson, of St. Catharines, and W. W. Moore, of the Cold Storage Branch, Ottawa.

Harold Jones of Maitland, will speak on standards for the judging of fruits at exhibitions. Mr. W. H. Bunting, of St. Catharines, will give some attention to the pilfering of packages by the express messengers. This subject has been a burning one with the growers, especially in the Niagara District, the present season.

Cooperation, while successful in some places, is not spreading as it should. A number of men will touch on this subject. Reports will be given by some of the larger associations as well as by some of the smaller but equally successful associations. Mr. Le Drew, of the Guelph College, will explain some of the reasons for failure. He has been investigating this subject for two or three years.

One session of the Convention will be devoted to a discussion of the box and barrel packing exhibition at the show with demonstrations as to the proper methods to be employed. Mr. A. McNeill, of Ottawa, and Prof. Crow of Guelph, will be in charge and will be assisted by experts who will do the actual packing. Demonstrations will be given at the same session of the operation of power and hand sprayers. A number of the former will be on exhibition. This session will be held at the exhibition arena.

I enjoy reading THE CANADIAN HORTICULTURIST very much.—Chas. L. Honeyman, Toronto, Ont.

Items of Interest

The Pomological and Fruit Growing Society of the Province of Quebec has issued a premium list for the fruit exhibition, open to the province, that will be held in connection with the annual meeting at St. Hyacinthe, December 6 and 7. Copies may be obtained from the secretary, Peter Reid, Chateauguay Basin, Que.

Mr. W. Miles, of Peterboro, brought into the office of THE CANADIAN HORTICULTURIST recently a specimen of a Glen Mary strawberry partly ripe and of fair size, which had been grown from seed this year. Mr. Miles picked a number of these berries between October 6 and 11.

Indications are that the third National Apple Show, which will be held in Spokane, Wash., November 14th to 19th, will exceed its predecessors. An apple packing contest will be held to decide the championship of the world. The first prize will be \$100 in cash. An apple packing school will be conducted free throughout the show. Girls will give demonstrations in the coking of apples. One thousand dollars will be given for the best carload of fruit.

The Crop Reporter, issued by the United States Department of Agriculture, for the month of October placed the percentage of the apple crop for the whole of the United States for this year as 46.4, compared with 43.9 for last year, and with a ten year average of 53.8. Grapes were placed at 72.7 per cent. compared with 86.5 per cent. for last year and a six year average of 84.1 per cent. Pears were given as 64.7 per cent. and cranberries as 74.7.

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WHERE THE FOUR CORNERS OF THE EARTH MEET TO DRINK TEA

A good many thousand people during the recent Toronto Exhibition visited this booth and sat long enough to drink a cup of delicious Red Rose Tea and passed on rested and refreshed to a fuller enjoyment of the great fair. Next to the quality of the tea, what most appealed to the visitors, was the dainty way in which the tea was served.

The plan of charging 5c and giving it back again in the form of a ticket good for 5c anywhere when buying a package of Red Rose Tea was approved by everyone. During the fair, hundreds of grocers and their friends visited the booth and were made very welcome by the traveller in charge. They were all enthusiastic in their praises of the tea. Indeed, everyone who came

went away praising the tea and they came from every province in Canada, every state in the American union, and almost every part of the empire. The delicate fragrance, delicious flavor and smooth satisfying strength of Red Rose Tea were to all a real enjoyment and to many a revelation in tea goodness and quality, convincing everyone that Red Rose Tea "is good tea."

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NOTES FROM THE PROVINCES

British Columbia

"Cerasus," Kelowna, B. C.

The Kelowna exhibition held by the Agricultural and Traders Association of Okanagan Mission, representing what is now known as the Kelowna district, was held on Sept. 20th and 21st. With the exception perhaps of vegetables, all the classes compared favorably with former years. Fruit however, for which a new wing had been added to the hall, quite jammed the allotted space. The exhibits were necessarily staged so close that much of their educational value was lost. In color, size and freedom from blemish the fruit was all that could be desired.

In several instances discriminations were made in judging against very large apples. The plate exhibits of McIntosh, one of the very foremost varieties in the Okanagan were conspicuous in this respect. This seemed right as irrigated districts are particularly apt to produce oversized fruit and large size is usually at the expense of quality.

For the five heaviest apples Alexandra won, the five specimens weighing 5 lbs. 13½ ounces, beating some nice exhibits of Wolf River, which generally wins out for greatest weight. Yellow Newtown Pippin was grand in both plate and box classes. This apple, so particular about soil and locality in the east, seems to find things to its liking around Kelowna. On well drained "bench" land, on partly sub-irrigated bottom land, on sandy land and clay, though I know of no mature trees, the young ones are bearing well, and in good health.

British Columbia Notes

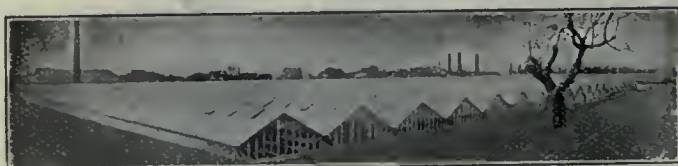
The great fruit fair representing the Kootenay district held in Nelsen the last few days of September was a great success. There were over 800 entries. Five different districts sent excellent exhibits of apples to compete for the district prize. Grand Forks won and was awarded the Johnston cup and \$100.00. West Arm was second. The vegetable and floral exhibits were of excellent quality.

Dr. Gussow, Dominion Botanist, and Inspector Wilson recently completed a three weeks' inspection of Vancouver island and Okanagan orchards. While some fungoid diseases were found, both agreed that British Columbia was fairly free from injurious insect pests.

It is estimated that over five hundred earloads of fruit will this season be shipped from the districts surrounding Okanagan Lake, in British Columbia. A great number of the fruit ranches last season sowed cover crops as root protection, and its beneficial results have been demonstrated in the increased yield of the orchards that were so treated.

Hon. James Duff, Minister of Agriculture for Ontario, paid a visit to this province recently. Speaking about the fruit industry Mr. Duff claimed that at present 35 per cent. of the demand for fruit in Canada is supplied by Ontario, 15 per cent. by British Columbia, and 50 per cent. by the United States. He did not believe that there was any danger of there being any serious glut in the Canadian fruit markets through increased production. Ontario, he claimed, produced 75 per cent. of the fruit grown in Canada, 70 per cent. of the apples, 90 per cent. of the mixed fruits and 99 per cent. of the grapes and peaches.

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We want agents at once to canvass territory where we are not already represented. Liberal terms; outfit free. Special salesmen wanted for the Peach districts.

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RIDGEVILLE, ONT.

Niagara District, Ont.**Weary Worm, Winona**

The exceedingly favorable weather we have had this fall has enabled fruit growers to get far ahead with their work and consequently by this time (October 24th) all the fruit is pretty well picked, except a few late grapes, Kieffer pears and Winter apples.

The grape crop has turned out larger than expected, and has been of most excellent quality. Extraordinary fine bunches of Campbell's Early, Niagara, Red and Black Rogers, and Brighton, have been produced.

That portion of the crop that was allowed to get ripe before being picked gave excellent satisfaction to consumers. Unfortunately only half the crop was handled in that way. The other half was picked before it was more than half ripe, and indeed, in some cases before it was fit for even a hog to eat.

Consequently, in the early portion of the season numerous complaints were received from consumers in Toronto and other places that grapes were very poor in quality this season. Of late, however, the reports have said how fine in quality they are. The moral is obvious, but no substantial improvement will be made till either the District is more united in its mode of distribution of the crop, or till a special penal clause be added to the Fruit Marks' Act, covering the green grape question, and thus enabling the inspectors to seize such shipments, which at present they are unable to do.

The price for the bulk of the grape crop, whilst much better than last year, has not been what it should have been. Growers have received less for their grapes than the situation warranted. A more united system of distribution would remedy this evil also. It is coming.

Mr. Debson, of Jordan Harbor, sent a shipment of Early Crawford peaches—1,000 cases—to Covent Garden Market, London, England which arrived in capital condition. This shipment was packed and shipped under the superintendence of Mr. P. W. Hodgetts of the Department of Agriculture, Toronto. Another shipment left St. Catharines on Tuesday, the 13th September for Bristol, put up by the St. Catharines Cold Storage Co., under the superintendence of Messrs. W. W. Moore, Ottawa, and Dominion Inspector Carey. One left a little later for London, Liverpool and Glasgow and another went forward the next week, all from the St. Catharines Cold Storage Co.

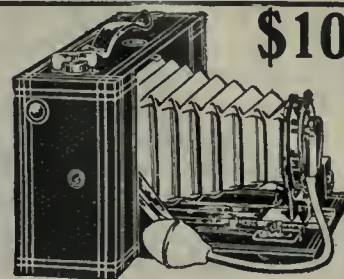
The various shipments were well and carefully packed, and arrived in England in capital condition—and, according to reports, sold at fairly good prices. A complete financial statement as to expenses and receipts attending these shipments will be awaited with great interest by the peach growers of the district.

The cooperative companies and a good many of the growers are boxing all their ones and twos this year, and only barreling the thirds. Apples are selling at from \$1.25 to \$1.75 per box f.o.b.

Grapes at Winona are bringing 11 to 16 cents per small basket. Pears are worth 20 to 45 cents per basket. Kieffer pears are bringing one cent per pound at the canning factory. Apples are selling at \$2.50 to \$4.50 f.c.b. the cars. Peaches are almost over but choice ones are worth 65 to 70 cents per basket.

The annual convention of the Ontario Horticultural Association will be held in Toronto Nov. 17 and 18 at the time of the Ontario Horticultural Exhibition. Two well known speakers from the United States will address the convention.

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If your dealer does not carry "Black Knight" Stove Polish in stock, send us his name and loc, and we will send a full size tin by return mail.

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Makers of the famous "2 in 1" Shoe Polish.



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Its clean taste—its crystal purity and recognized economy—make Windsor Salt the prime favorite in every home where it is used.

Don't pay fancy prices for imported salt, when Windsor Salt costs so little, and is so high in quality.

WINDSOR

TABLE

SALT

New Brunswick

On October 31st, November 1st, 2nd and 3rd over 400 boxes, 150 barrels and 1,000 plates of New Brunswick apples will be on exhibit in St. John. Over \$700 are offered in prizes, and indications point to a large number of entries and keen competition. In addition to the competitive exhibit the Provincial Department of Agriculture is making a large display of boxed and barrelled apples.

A three days' convention is being held on the same dates by the Fruit Growers' Association. Business of great importance to the future of fruit growing in the province will be transacted and a series of instructive addresses and demonstrations given by Mr. W. T. Macoun, Prof. J. W. Crow, and Mr. R. C. Treherne, of Ontario, and by Prof. Shaw, Mr. R. S. Starr and Mr. G. H. Vroom, of Nova Scotia. It is expected that the show will awaken a much greater interest in fruit growing in New Brunswick and will be followed by a considerable development of the industry.

Eastern Annapolis Valley, N.S.

Ennice Walls, A. R. H. S.

The first few flakes of snow fell in the Valley on October 11th, since then the weather has been quite cold, but we are hoping for Indian summer before the ground freezes.

On September 23rd an exhibition of vegetables and flowers was held in Berwick school house, the products of the school gardens belonging to the sections of Berwick, Waterville and Somerset. This is the first time that the children have tried school gardening, but as it has resulted in such a creditable exhibition it will probably be continued.

The Kings, Hants and Annapolis First Show this year took place at Windsor, where the display was excellent. The vegetables were particularly fine. Fruits have been somewhat late in ripening, though outdoor grapes are said never to have been better.

In the nursery rows bands have been cut from the stocks which were lugged early in the fall.

Prince Edward Island

J. A. Moore, Hazelbrook, P. E. I.

There is but a poor crop of apples on Prince Edward Island this year. We had a heavy frost on June 6th that killed the bloom in many orchards. In our own, the leaves as well as the blooms were killed and the orchard looked as if a fire had run through it.

Early apples sold at from 60 cents to 80 cents per bushel, according to variety. Winter varieties will likely command a good price as stocks are small and prices are high in both Nova Scotia and Ontario. Plums were a good crop and sold at from 5 to 8 cents per quart. I noticed brown rot on plums in one orchard. We have not been troubled much with this here; but if steps are not taken to control it, it will spread rapidly and menace our whole crop. All diseased fruit should be removed and the trees and ground under them thoroughly sprayed. In the orchard spoken of, over half the crop was ruined.

One of the finest of new apples we have new is the Dudley or North Star which is about the same season as the Wealthy and a larger apple. It is a beautiful apple, highly colored and of good quality. It might well be largely planted as those who have had it for years speak highly of it.

Fruit growers should begin now to pick out samples for the winter fruit show and try and make it the best we have ever had.

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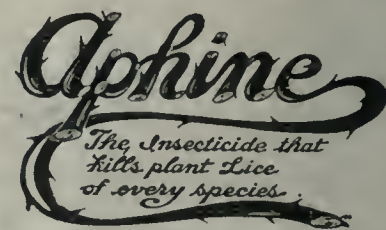


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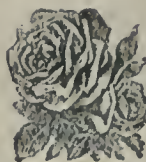
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judge, Professor H. E. Van Deman, of Washington, D.C., is known throughout America as an expert pomologist. The associate judges are: W. H. Bunting, St. Catharines, Ont.; Martin Burrell, M.P., Grand Forks, B.C.; Prof. F. C. Sears, Pomologist, Massachusetts Agricultural College, Amherst, Mass.; Prof. Wilbur K. Newell, President State Board of Horticulture, Gaston, Ore.; and Prof. John Craig, Secretary American Pomological Society, Cornell University, Ithaca, N.Y.

The Horticultural Exhibition

Arrangements already completed indicate that the Ontario Horticultural Exhibition, which will be held in Toronto, November 14-19 will be larger and better than ever. The exhibition itself promises to be of unusual interest as there will be some additional district displays, notably those from Northumberland and Durham and Leeds and Grenville counties. Ontario and Norfolk counties will also be on hand with a possibility that Prince Edward will also put up a small, but attractive display. In addition there will be educational exhibits, with particular reference to spraying, from the Jordan Horticultural Experiment Station and the demonstration orchards of Notawasaga Township, Simcoe county.

Changes have been made in the prize list so as to call for additional varieties of specimen apples. Two sections have been added for skill in packing, giving 75 per cent. of the points for that part of the work. A class has also been added for five box displays of Spy and Baldwin, also a class calling for ten plates each of Baldwin, Greening, King and Spy. These new sections should add greatly to the value of the exhibition from an educational standpoint.

The Womens' Institutes are holding their big convention on Nov. 17 and 18, and the exhibit of preserved fruits, jams and jellies will be under their control. There is a possibility that Mr. James E. Johnson, for the Norfolk Fruit Growers' Association, will put up a car load of boxed apples. This will be something entirely unique and a new feature at this exhibition.

Pilfering by Express Employees

Mr. W. H. Bunting, of St. Catharines, who has represented the fruit growers of Ontario before the railway commission on several occasions most successfully, is collecting evidence in regard to the excessive amount of fruit stolen from packages by employees of the express companies while the fruit is in transit. Mr. Bunting recently laid evidence of twelve cases before one of the heads of a leading express company, without receiving practically any satisfaction.

The representative of the company claimed that the fruit growers frequently pack their fruit very poorly and blame resultant losses on the express companies, and intimated that the amount of fruit stolen was comparatively insignificant in quantity. The matter will not be allowed to stand in this position.

The cargo inspector for the Canadian Department of Agriculture at Glasgow, Mr. James A. Findlay, reports that the four firms, Messrs. Simons, Jacobs & Co., Jas. Lindsay & Sons, L. and H. Williams & Co., and Mr. Thomas Russell, who handle large quantities of Canadian fruit, have established one of the finest salerooms in the United Kingdom. It accommodates the bulk of the apple buyers, whereas under former conditions, when individual sales prevailed, the buyers were scattered and the purchasing power of the market was limited to a certain extent.

Paeonies in 1910

John Cavers, Oakville, Ont.

The pæony season of 1910 was remarkable for its brevity. The season was late all over the continent, but it was an excellent one to show amateurs the great possibilities in the pæony. The long season of growth beginning here in the middle of March with an abundance of moisture and a low temperature, seldom however, so low as the freezing point, gave the hardy pæony an unusual opportunity to develop large, strong blooming buds. The large-flowering varieties such as Festiva Maxima, Marie Lemoine, Madame Cabot, Duchesse de Nemours, Mathilde de Roseneck, Mons Jules Elie, and others, responded magnificently.

While the season was favorable to the pæony amateur it was unprofitable to the commercial grower of blooms. During the moist, cool weather of May and early June the buds were slowly developing but would not open. So fully formed were the buds before warm weather came that it required only two or three hot days to expand these buds into fully opened blooms and there was little difference in the time of blooming between early and mid-season varieties. The cutting season was about one-fifth of the usual length. The season of 1910 will no doubt give an impetus to the planting by amateurs of the finer varieties of pæonies.

A Quebec Nursery

A representative of THE CANADIAN HORTICULTURIST recently paid a visit to the Canadian Nursery situated at Point Claire, a few miles west of Montreal. A general line of fruit and ornamentals is grown here. The location and soil seem to be splendidly suited for the purpose. Stock which is grown in this locality is possessed of great hardiness and gives good results in a severe climate. This is evidenced by the fact that large quantities of stock that have been shipped annually to Manitoba and the North West, have given excellent results. A large block of Norway Maples and Carolina Poplar, which are favorites in the West, was seen ready for transplanting.

All ornamental trees grown on the nursery are now lugged instead of allowing the seedlings to grow up. This makes considerable extra work, but results in producing straight, uniform trees, superior to those grown direct from seed.

All stock grown on the nursery is grown from their own cuttings, as trouble has been experienced in securing stock true to name or that would give satisfactory results in this climate. All fruit trees are cut back at the end of the first year, as recommended by Mr. W. T. Maccuu, for the production of uniform and vigorous stock. A few three year old apple trees were seen which had not been so treated, and which were very little ahead of two year old trees which had been cut back. Several fine blocks of three year old apple trees were seen which had attained a height of about eight feet, and which will be disposed of this coming season.

It might be thought that pears would not thrive in the vicinity of Montreal, but the vigorous appearance of a block of two and three year old pear trees of the standard varieties indicated the contrary. Currants, gooseberries and other small fruit looked exceedingly well.

Recent publications to reach us include the fortieth annual report of the Entomological Society of Ontario, the fifth annual report of the Ontario Vegetable Growers' Association for 1909 and Bulletin No. 100 of the Experimental Station, dealing with the fertilization of apple orchards.

**SMALL FRUIT PLANTS**

Gooseberries, Josselyn, Red Jacket, Downing, Pearl, Houghton.—Currants, Perfection, Ruby, Cherry, White Grape, Lee's Prolific, Champion, Black Naples, Victoria.—Raspberries, Herbert, Cuthbert, Marlboro, Brinckle's Orange, Golden Queen, Strawberry-Raspberry.—Garden Roots, Asparagus, Rhubarb, Perennial Celery,

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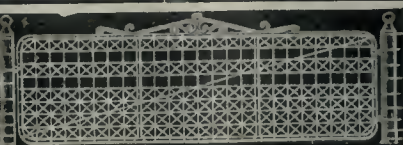
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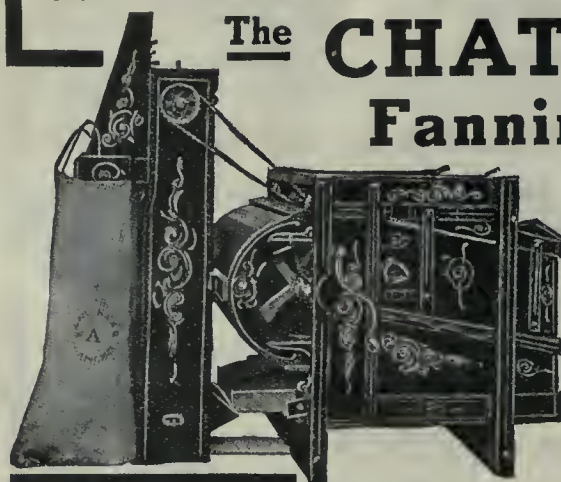
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Landscape Work

In developing lawns and estates great care and judgment is required in the locating of walks and drives, the selecting of suitable varieties of trees and shrubs to be planted and the arranging of them artistically. Many homes lose their charm for lack of knowledge and experience in developing the grounds.

This difficulty is overcome by our Landscape Department, which is in charge of experienced men qualified to develop grounds of city or country homes, large estates, school and public grounds, parks, cemeteries or factory lands. Now is the time to discuss fall or spring work. Correspondence solicited.—Brown Bros. Co., Brown's Nurseries, Welland Co., Ont.

The Dominion Orchard Company

Prof. W. S. Blair, Macdonald College, Quebec

About 30 miles from Montreal, on the sunny slopes of Rougemont, the Dominion Orchard Company is developing a property of about 300 acres, devoting the entire area to fruits and vegetables. The company is composed principally of Montrealers who have confidence in the capabilities of the province for producing certain fruits and vegetables to supply its own market, and in this they will not be disappointed.

The slopes of Rougemont, Abbotsford and St. Hilaire have long been known as ideal spots for the production of all classes of fruit of the highest quality, especially apples of the Fameuse type. Capt. R. W. Shepherd, one of the veteran fruit growers and a shipper of high class fruit to a special English trader, says that fruit from these sections cannot be excelled.

At the base of Rougemont are various plateaus of different elevations sheltered by mountain ridges. These are made up of soil well watered by streams from a lake situated on the top of the mountain. The soil is ideal in texture, being at fault in some cases only in excessive richness. On the slopes vegetation is rapid, and the intention is to supply early truck crops to the Montreal market in abundance. Some 50 acres of this land is already planted to small fruits, principally raspberries and strawberries, all of which are making good growth.

At the foot of the mountain is excellent vegetable land. On this, celery of the finest quality can be developed. It is the intention to grow 10 acres of this crop this year and ultimately to supply the Montreal market during the winter, doing away with the necessity of the large importations of this crop from California and elsewhere.

The greenhouses are of King construction and occupy one acre. In these, lettuce, radish, tomatoes, rhubarb and other vegetable crops are grown. They are located in a valley getting full benefit of the sun but well sheltered by surrounding hills. The returns from the houses last winter were so satisfactory that additional houses were erected this year, and no doubt the present plant will be increased as the business develops.

Large orchards of Fameuse and McIntosh Red, with cherries and plums in fillers, are being planted and considerable areas are now growing these fruits.

Knight Bros., of Mission City, B.C., shipped a crate of 12 baskets of strawberries to Vancouver, September 13th. These berries sold for \$6 for the half crate. This price was paid because the fruit was a curiosity. It cannot be supposed that a quantity would sell so well. If they did, then fall bearing strawberries might be made profitable.

The Canadian Horticulturist

Vol. XXXIII

DECEMBER, 1910

No. 12

Cover Crops in the Orchard*

Prof. S. Blair, Macdonald College, Que.

COVER crops and their value in orchard practice is one of many important operations in orchard management which should receive more attention if we hope to produce fruit economically. The three methods of culture usually recommended are: First—The cover crop method; Second—The clean culture method; Third—The sod mulch method. There are some who advocate growing trees in sod but this is an unwise method. It is adaptable only to very exceptional conditions, and should not be recommended.

The cover crop method briefly is to cultivate the ground from early spring until the first of July, sufficient to keep a fine earth mulch on the surface, and at the time of the last cultivation seed to a cover crop which will produce a good mat of vegetation to work under either in the late fall or the following spring. The clean culture method is similar to the above except that no cover crop is grown and the ground is left bare, or to be occupied by an occasional weed after the last cultivation early in July.

The sod mulch method is to mulch, usually with manure, the area occupied by the tree sufficient to prevent great evaporation from the soil, and to keep all grass or weeds cut, not allowing them to grow taller than six inches and letting this material also remain as a mulch. This practice is advisable if conscientiously followed especially on hilly, rocky or very open gravelly soil, but what some growers

practise and call the sod mulch method I would call the large hay crop method.

If the clean culture method is followed some means must be adopted to get humus into the soil. Without humus our soils become unproductive. Humus not only

these lowly forms of life are large factors in rendering a soil productive.

Commercial fertilizers do not add humus to the soil. They can be used most economically only on a soil not deficient in humus for otherwise a continuous supply of available food material is not within reach of the plant. I do not mean to say anything against the use of commercial fertilizers for they can be used to advantage by the orchardist. But what I want to impress upon you is that humus in some form is essential, and if the clean culture method is followed, stable manure or litter of some sort, must be used to furnish it. Manure is not available for many growers and, besides, if cover crops can be grown in the orchard to supply the humus, and not be a detriment but rather an advantage to the growing tree or ripening fruit, why not make use of it?

Many orchards are located on hillsides and if cultivated a serious washing may occur during the fall or early spring rains if not prevented by means of a cover crop of some sort.

Nitrogen, one of our most costly elements of fertility, may be largely supplied through a leguminous cover crop and the purchase of fertilizers confined to the potash and phosphate manures. If clean cultivation is followed this free nitrogen cannot be secured. The above reasons are, I think, sufficient to warrant one in advocating the cover crop method of orchard cultivation.

RIPENING THE WOOD

Another phase of the subject, is the proper ripening of the wood for winter.

The Challenge of the West

British Columbia has challenged the provinces in Eastern Canada to hold a "National" Apple Show. What is the East going to do about it? Our Eastern growers claim to have more extensive areas of land adapted to growing apples of high quality than can be found in British Columbia. They profess to grow apples of better quality. British Columbia growers now say, "Prove it."

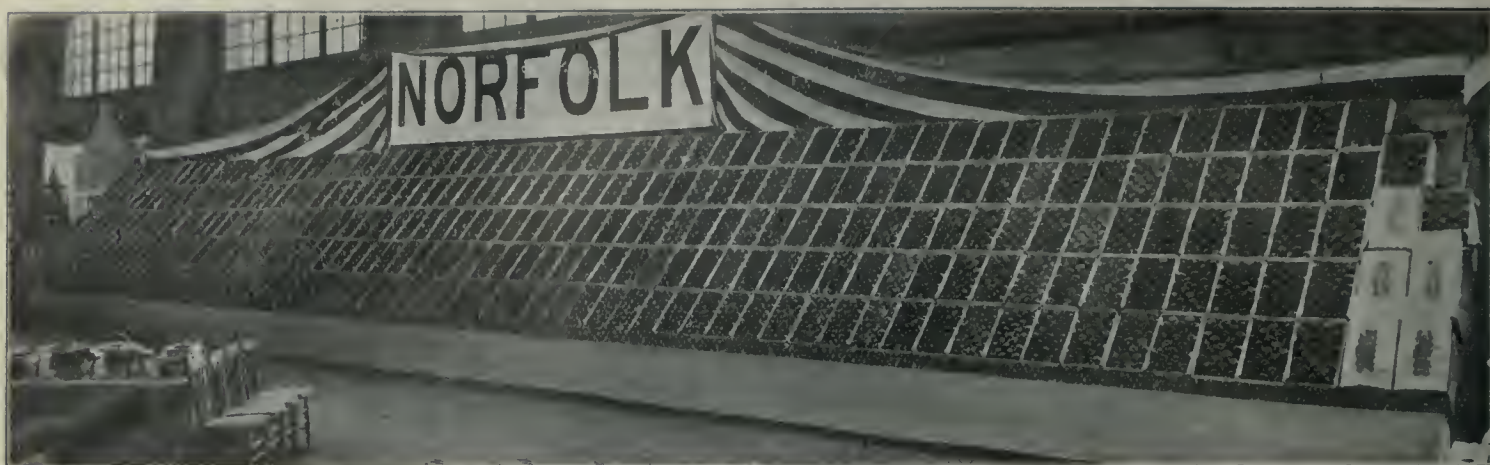
The challenge falls properly at the feet of Ontario fruit growers. Granted that we have the fruit districts and the fruit, have we got the men who can "prove it"? The apple producing and consuming districts of the world await the answer.

aids in conserving moisture but gives as well a better mechanical texture to the soil. It lightens up heavy soils and makes an open soil more compact. Humus in the soil assures an ever present supply of nitrogen, and prevents the leaching from soils of potash and phosphoric acid. Bacterial life in the soil is largely dependent upon humus and we must not forget that

*Extract from a paper read at the annual convention in Toronto last month of the Ontario Fruit Growers' Association



An Evidence of what New Brunswick can do in the Production of High Grade Apples. A portion of the Display at the Recent Exhibition at St. Jobo, N. B.



The Prize Winning Half Car Load of Banded Apples Shown at the recent Ontario Horticultural Exhibition by the Norfolk Fruit Growers' Association

Winter injuries may result from improper ripening of the wood or it may be due to improper nourishment. Instances of the latter are found in cases where there has been heavy fruitage which drains the tree of its vitality unless there is sufficient food available to supply the growing tissue as well as the fruit. Nature directs all her effort first to the development of seed to perpetuate the species, and the tissues of the plant are supplied only after this want has been met. Were we to place within the reach of our trees food as required I think we should hear less about the winter killing of our bearing trees. The improper ripening of the tissues of a tree may be due to an excessive food supply, or excessive moisture conditions in the soil, or to a continued high temperature. The temperature and food supply are largely influenced by the moisture conditions, although a combination of these factors is responsible for late growth.

The moisture conditions are in a measure within our control by the use of cover crops. In irrigated districts the grower has absolute control of this factor and can ripen off his trees when he wishes by the withholding of water. We have no such absolute control in the use of cover crops, for excessive rains at a certain period may largely counteract any drying effect we wished to produce through the use of a cover crop that tends to dry out the soil.

EFFECTS OF COVER CROPS

The following table will give some idea of the relative drying effect of various cover crops. These experiments were conducted in our young orchard and show the percentage of moisture in the soil in the middle of September: Millet, 7.24; Oats, 10.; Rape, 10.1; Winter Rye, 11.6; Crimson Clover, 11.8; Buckwheat, 11.8; Red Clover, 12.3; Vetch, 12.8; No Cover Crop, 14.9.

It will be noticed that the strong growing cereal crops and rape will run down the moisture contents of the soil very rapidly, and for this reason they may be advisable in some cases. The oat crop had four per cent. less moisture than the check plot growing no cover crop. Crops

that form a dense mat prevent evaporation from the soil and this is one reason probably why the clovers and vetch do not so materially reduce the moisture contents. It was found also that the

quick growing cereal crops reduced the moisture of the soil earlier in the season than the clovers, especially than the Red Clover, which requires a longer period to form much leaf area.

An Over Production of Apples Improbable*

G. H. Vroom, Middleton, N. S.

A LARGE majority of those present have heard the statement made, possibly some of you have made it yourselves, that the time was near when there would be so many apples grown that no market for them could be found and that the orchards, which cost large sums of money and much time and hard labor to bring to a bearing age, would be hewn down and cast into the fire. If this doctrine of over-production has not reached New Brunswick you are fortunate.

It might be possible to produce more apples than could be profitably marketed, but judging from the history of apple production and consumption in the past it is not likely to transpire.

Let us look back over the past thirty years and see what has taken place. In the year 1880-1881, the United States exported apples as follows:

From New York	.....600,000 barrels
From Boston	.....510,000 barrels
From Portland	.....40,000 barrels
From Philadelphia	.....10,000 barrels

Total from American

ports1,160,000 barrels

In 1908-1909 the figures are as follows:

From New York	.....363,000 barrels
From Boston	.....189,000 barrels
From Portland	.....89,000 barrels

Total641,000 barrels

By these figures we find that the export of apples from the United States has decreased over 500,000 barrels dur-

ing a period of thirty years. Yet all this is no evidence that our neighbors across the border are less active or producing less apples than they did in the year 1880. Just the opposite is the case. More and better apples are produced than formerly, but the demand is far greater in their own country.

Perhaps it would not be an exaggerated statement to make if I should say that not more than ten per cent. of all the apples grown in the United States find their way into any export market, and I think it would not be going too far afield to say that judging from the increase in the population for the last ten years that at the end of the next ten our neighbors will be importing apples to be consumed by their own people. Now let us look at the condition of things in Canada.

CANADIAN CONDITIONS

In the year 1880-1 the number of barrels of apples exported from Montreal was 145,276. In the year 1903 the export had gone up to 732,000 barrels. But since 1903 it has dropped to 353,000 barrels. Is this because the fruit growers of the great provinces of Ontario and Quebec are giving less attention to the growing of apples? Not by any means; more apples of higher quality are produced, but the demand is so steadily and rapidly increasing in Western Canada, where thousands upon thousands of settlers are taking up farms and where larger towns and even cities are springing up almost in a day, that the time is not far distant when the old provinces of Ontario and Quebec will be exporting few, if any, apples.

In the year 1880-1 there was exported

*A paper read at the annual convention in November of the New Brunswick Fruit Growers' Association, at St. John's, N. B.

from St. John, N.B., and Halifax, N.S., combined 24,250 barrels. In the year 1909-10 the export from these ports had grown to 670,000 barrels, an increase in thirty years of 645,750 barrels. This increase is due to the increase in production without a corresponding increase in local consumption.

With the United States consuming the entire product of their own country, and the great north west requiring the crop from Ontario and Quebec, after their own local markets have been supplied, and with the export to the Old Country from Australia and Tasmania coming in during the months of April, May, June, and July, when North America has no apples to ship, it is not a very great stretch of imagination to believe that the Maritime Provinces of Canada must supply to a large extent the apples consumed in the large cities on the other side of the Atlantic.

THE WESTERN MARKET

It is less than ten years since the Dominion Department of Agriculture sent an experimental car load of apples to Winnipeg and sent a man all the way from St. Catharines in Ontario to look after the car. It was considered a risky thing to do, to send a car load of fruit all the way to the city of Winnipeg. What is the condition of things there

to-day? One firm in Winnipeg handled over one hundred cars of fruit from St. Catharines alone up to the 22nd day of October, and up to that date nearly three hundred cars of fruit had been sold at auction in that city. This does not include fruit sent in from the American side of the line. In the face of all this Ontario Spys are selling to-day in the city of Winnipeg for from \$5.50 to \$6.00 per barrel. The Winnipeg Fruit Auction Company, which has only been in operation four months, reported through their manager, Mr. Sinclair, that they had handled sixty-five cars of fruit from Ontario and ten cars from British Columbia up to October 20th.

About six years ago a trial shipment of apples was made to South Africa from Nova Scotia. It was found that there was a market for a limited amount of apples at a good price. These shipments have increased until this season apples will find a market in South Africa. This trade is destined to increase more and more. And further permit me to remind you that our local markets are expanding and our population is increasing. Consequently, more apples are consumed by our own people.

Less inferior fruit is being packed every year. Our people will eventually be educated to the point where they will

pack only the good apples in barrels for market and send the poor ones to the canning factory and the vinegar mill. The apple industry of Canada is yet in its infancy. The outlook was never brighter than at present. The up-to-date orchardist has no reason to worry about an over-production of apples.

Profits from Apple Orchards*

R. R. Sloan, Porter's Hill, Ont.

What profits may reasonably be expected from an apple orchard? In 1907 we harvested 700 barrels of apples at \$1.65 per barrel on the ground from ten acres of orchard, containing 350 trees. This brought in \$132.00 per acre. The varieties consisted of Ben Davis, Kings, Greenings, Spies and Baldwins.

In 1908 the crop was very light. We got only 250 barrels from the same area, or \$45.60 per acre at \$1.50 per barrel.

In 1909 we had a heavy crop, upwards of 2,000 barrels being harvested from our whole orchard. The 350 trees referred to produced 750 barrels at \$2.25 per barrel, or \$192.80 per acre.

This year the apple crop in general was almost a complete failure. Nevertheless, 100 barrels were picked from the above mentioned trees at \$3.75 per barrel, or \$43.00 an acre, giving a total of \$413.40. Thus for the four years our

returns from this ten acres of orchard have been \$103.35 per acre on the average from trees seventeen to twenty years of age.

The cost of producing these apples was as follows: It cost \$2.35 per acre for plowing, \$1.05 for cultivating three times, \$8.75 per acre for pruning, and \$8.30 for spraying using bordeaux mixture at an average cost of one and one-third cents per gallon for three sprayings. The past year we used lime sulphur and arsenate of lead, and it cost a little more for the first spraying. Fertilizing, at the rate of five loads of



A View of a Portion of the Fruit and Floral Exhibits at the Recent Ontario Horticultural Exhibition held in Toronto

*Extract from a paper read at the recent convention in Toronto of the Ontario Fruit Growers' Association.

manure, cost at 50 cents per load, \$2.50. The whole benefit of this was not returned in the one year, but was spread over a number of years. The cost of pulling at 10 cents per barrel, in round numbers, was \$9.00 per acre.

To sum up we find that the cost was practically \$27.00 an acre. This, deducted from \$103.35, leaves \$76.35 profit per acre for trees from seventeen to twenty years of age, or \$763.50 for ten acres.

BETTER RETURNS

We have sections of orchard much older that give considerably heavier returns. One old plantation of an acre in extent, containing thirty-five trees, mostly Spies, has given as high as \$18.00 a tree even at the low price of \$1.50 a barrel, or \$530.00 for less than an acre.

Protect the Trees

J. A. Moore, Prince Edward Island

Building paper cut in strips and tied around the trunks of fruit trees will prevent mice from gnawing the bark. You should attend to your trees now, as the deep snow will give the mice a fine chance to girdle the trees. If you tramp down the snow hard around the trunks it will stop the mice from getting at them.

By manuring the young trees in the fall you serve a double purpose—you fertilize the tree and by banking some around the trunks protect them from the ravages of mice.

Lime Sulphur vs. Bordeaux*

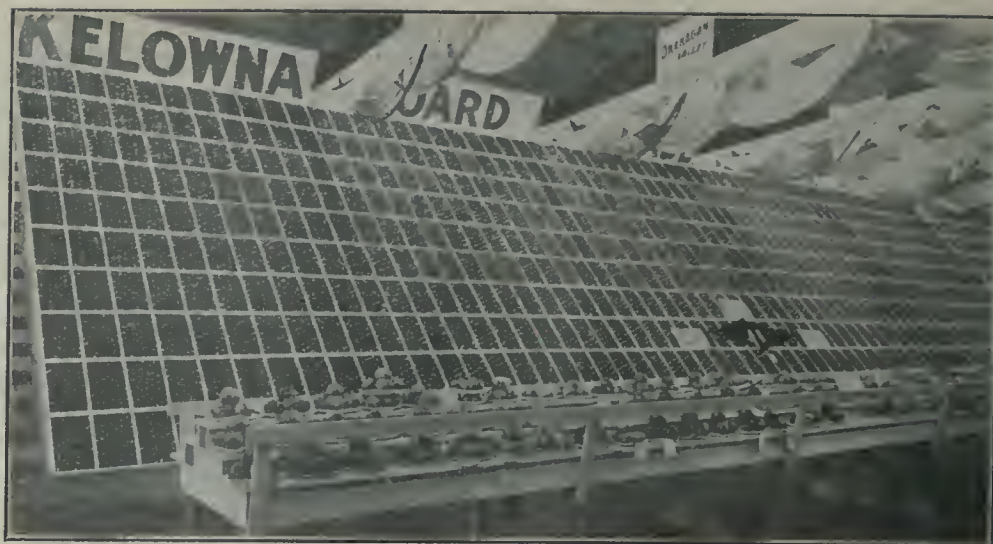
R. R. Waddell, Simcoe Co., Ont.

We have had a year's further experience with the lime sulphur and bordeaux mixtures for spraying. As far as the first spraying in concerned it is generally admitted that on account of the Blister Mite we should all use lime sulphur, which will control this pest if it is used at the proper time. If, however, this spraying is neglected until the leaves peep out a quarter of an inch it will fail to control.

This year I went through several orchards in three counties and found no proof that three sprayings of lime sulphur for the fungus was any better than one of lime sulphur and two of bordeaux. In a close examination of some of the orchards sprayed three times with lime sulphur I would find one to be barreling ninety per cent. free from fungus while adjoining orchards, which received the same formula, had fungus on 30 per cent. of the fruit.

In examining orchards sprayed with bordeaux I found them differ in the same way. Whether this was due to a lack of preparing the formula it was hard to explain.

*A paper read at the recent convention in Toronto of the Ontario Fruit Growers' Association.



The Winning Car Load of Apples Shown by the Kelowna District of B. C. at the Canadian National Apple Show (Note that the exhibits are ten boxes high. See report Page 285.)

We can figure that lime sulphur has two points of advantage for the last two sprayings: First, it does not cause the fruit to rust; second, we can use the home boiled concentrated, which is a little cheaper than the bordeaux. These however count for very little in compari-

son to controlling the fungus. The only condition upon which I would pass any opinion as to which is the best for the fungus is to see two like machines in an orchard in the same hour spraying with the two formulae and then note the results.

Floral Hints for Amateurs for December

Frank Wise, Peterboro, Ont.

EVERYTHING in the way of cleaning up your garden and grounds should have been accomplished by the beginning of this month. If it has not been, and the weather should continue favorable, it is a good plan to open all drains to carry off surplus water in the spring and to dig any ground that has not already been dug. Use a spade and leave the surface as rough as possible.

The pruning of shade trees can be done to advantage this month. Take out branches that are too low, cross limbs, and dead ones. Do not forget to cut out or remove every other one of the young trees which you planted a few years ago, as they grow up and touch each other. You will be surprised how quickly the ones that are left will fill up the vacant spaces.

A good way to remove young trees is to dig a trench around them about eight inches to three feet from the trunk, according to the size of the tree, letting the earth freeze on the ball that is left. Later pry up the ball and at the same time pull over the top. When you can place a stoneboat or truck underneath the ball the tree can be easily removed to any place where you may wish to replant it.

CARE OF HOUSE PLANTS

Your house plants during the winter months require careful watering. This must be done only when the plant becomes dry.

When potting your house plants be

careful to put an inch or two of broken pottery in the bottom of the pot for drainage purposes. It is often owing to neglect in this respect that your plants turn yellow and sickly and do not bloom.

Some of the bulbs which have been planted and put in a dark moist place to root will be ready to bring up to the light. Do not expose them at first to the bright sun, but gradually move them



A Protection for the Flower Bed

there as they become accustomed to the light. They will require copious watering to keep them growing and to produce good flowers.

Mulch your bulb beds with rotten manure, which can be left on in the spring, when it will serve the double purpose of fertilizing and retaining the moisture in the soil. Frequent cultivation of your bulbs in the spring is necessary for success.

Cover pansy beds with cedar or spruce

boughs to hold the snow and prevent freezing and thawing in the spring. It will also protect them from the early March sun, as it often is due to the sun that your plants kill out and not to the hard winter as is sometimes thought.

Climbing plants, such as roses, clematis, ampelopsis, and others, that you do not wish to take off your walls and fences during the winter will be benefited by a covering of spruce or cedar boughs, matting, or coarse canvas for protection against the March sun. A few forkfuls of long, strawy manure or leaves placed around the roots and a spadeful or two of earth, to keep them in position, will be of benefit.

Tender border plants, such as hollyhocks, Shasta Daisy, pinks, Canterbury Bells, and others, can be given a covering of brush, which will be better than manure or any other solid covering, as the latter is liable to freeze and form ice around your plant, excluding the air. This eventually would cause it to rot and die. Bush roses and slender shrubs should be treated to the brush covering if it can be obtained and for the same reason.

Strawberries that have not been mulched should be given a covering at once. Use good, clean rye straw if possible.

It will be well during December to look over your vegetable stores. Much

loss can often be prevented by removing any rot that may have commenced. Onions that have not been properly ripened will have a tendency to grow. This is hard to prevent. Such onions can be used to good advantage by placing them in soil, growing them on and using them as green onions.

CARE OF THE LAWN

This is the time to mulch your lawn. Give it a covering of good, rotten stable manure, or better still, manure and soil mixed. This covering must not be left on after the growth begins in the spring without raking. This should be done two or three times as the weather permits. This treatment will allow you to leave most of it on the ground, taking off only the stones, sticks or long straw that may be in it.

Prepare for spring by cleaning, sharpening and repairing all garden tools, overhauling your lawn mowers, and giving them all an application of oil to prevent rusting. Make out a list of tools required and see that they are all in their place so that in the spring you will not be delayed in your work. Having this done now will often ensure a better and earlier start in the spring as a great deal of time is taken up looking for, repairing and replacing tools, which could be otherwise given to the cultivation of your garden.

(about forty inches wide) by themselves, and not mixed with herbaceous plants, shrubs or trees. Some of the dwarf polyanthus make ideal bedding roses as a border in front of the higher varieties. They can be used as tall six feet weeping standards, though in Ontario these have to be bound in earth to come through our severe winters.

Different varieties of the climbers can be grown on north, south, east and west walls or fences. They can be grown as dwarf or tall pillars. They can be grown for covering pergolas. The Wichurianas make an ideal covering for unsightly banks. They can be grown pegged down or bent over in semi-circles. Many of the varieties will make a splendid dwarf or tall hedge. Many roses make handsome bushes when grown on a lawn separately. They can also be grown in pots or in greenhouses for buttonholes or table decoration. In short, one can hardly desire to grow a flower in a position where a suitable rose cannot be used or found for it.

WHAT TO GROW

At our summer home on Toronto Island where the soil in our rose beds is quite unsuitable to get the best results in rose culture, we are experimenting with about seven hundred roses; sixty-five named climbing roses; about two hundred named Hybrid Teas; thirty Hybrid Remontant, and about thirty odds and ends such as Rugosa, Polyanthus Teas, Chinas, Sweet Briars, and others.

HYBRID REMONTANT

The name Hybrid Remontant means that they bloom a second time (or once more). This class is usually termed Hybrid Perpetual, but they are not perpetual bloomers like the Hybrid Teas, Teas and Polyanthus, and the term is misleading and I think should not be used by growers. This is the class of rose usually grown in Ontario because it is

Rose Growing a Delightful Occupation*

W. G. MacKendrick, President Toronto Horticultural Society, Toronto, Ont.

THE rose, the national flower of England, has thousands of named varieties in commerce. Roses of various kinds are found the world over. Many of the choice varieties grown come from far away India and Japan, and one can see various wild roses in our own favored land, from Vancouver in the west to Halifax in the east, and from Edmonton in the north to the most southern point in Ontario.

Where roses grow in their wild state, cultivated roses will also grow, and I am optimist enough to believe that perhaps in my lifetime, dozens of our cities, towns and villages will be as fragrant with the sweet perfume of the Queen of Flowers as are the towns and villages in England each June, and throughout the summer.

HOW TO DO IT

The rose fever is as catching as the measles, the mumps or some of the other ailments which flourish in Ontario, and I would that I had the power to inoculate each of you with a touch of it, because once caught, like the old-fashioned ague, it is hard to shake off. If each of you in your gardens had a bed of a few dozen hybrid tea roses, which would

bloom from June until November, you would inoculate your circle of friends and neighbors with the laudable desire to do likewise, and the ball once started would, like the endless chain, continue forever.

USES FOR THE ROSE

Roses can be used for general garden cultivation and should be placed in beds



The Flower Bed and Lawn of a Prescott County (Ont.) Farmer, G. D. Mode, President Vankleek Hill Hort. Society. This flower bed contains over 100 choice rose bushes of several different varieties.

*An extract from a paper read at the annual convention of the Ontario Horticultural Association held in Toronto, Ont., November 17, 18, 1910.

known to be hardy. They give an abundance of bloom at the end of June and the beginning of July and about half of them bloom again in September.

If asked to suggest the best dozen suitable for gardens, perhaps Frau Karl Druschki and Margaret Dickson for whites; Mrs. John Lang, Mrs. Sharman Crawford, Mrs. Cocker for light pinks; Alfred Colomb and Magna Charta for dark pinks; Captain Hayward, Ulrich Brunner and General Jacqueminot for light reds; Prince Camille de Rohan and Victor Hugo for dark reds, would be a fair selection.

HYBRID TEAS

These roses are a cross between the tender ever-blooming and the hardy Hybrid Remontant and other roses. They were first introduced in 1868 with that favorite La France, still one of the sweetest roses grown. They are practically continuously in bloom throughout the summer and they will stand our Ontario climate, as I have grown them for three or four years with few losses. Last year I only lost two per cent. of my stock and each plant lost was a weakling to start with.

The blooms are more delicate and refined in form, many of them having the high pointed centre, as distinguished from the cabbage effect of most of the Remontants. The colors range from the most delicate shades of peach, pink, soft yellow, to the deepest reds, oranges, and so forth. Most of this class have the sweet subtle fragrance of the tea roses. I look to this class of rose to be the rose of the future for Ontario, and I would like to see our Canadian nurserymen grow many of the new varieties of this class so that we could get Canadian grown stock in Toronto as well as in Britain or on the Continent. Most growers in Britain and the Continent now catalogue from two to five times as many Hybrid Teas as Hybrid Remontants. If you cannot get the varieties you want locally Alex. Dickson & Son, Newtownards, Ireland, are reliable people to purchase from.

THE BEST HYBRID TEAS

If asked to select the best twelve roses of this everblooming class, I would be at a loss just which to choose, because like a bevy of beautiful women, each has a special charm of her own, and like the gentler sex they possess as many moods and charms as there are hours in the day, and who is the man who can say that Caroline Testout is more handsome than Hon. Ina Bingham or Mrs. Peter Blair, and did he judge them in the early morning with the dew glistening on them, or when the sun was high in the heavens, or during that witching hour when the sun was just going down, when many things in our gardens look their best.

I have gone into the rose garden in the early morning when the dew was on



Portion of a Ravine in Rear of the Residence of Mr. G. A. Olive, Brantford, Ont., in process of Reclamation. No. 1

each petal, leaf and tree; when the rising sun had awakened the birds to singing their lusty jubilant songs in June, and what a glorious sight meets the eye! A thousand blooms of roses of every color in the rainbow besides many that the rainbow does not possess, indescribable in their beauty, with a fragrance which baffles description.

Is there any sight on this round earth more beautiful, more joyful and more uplifting when it meets the eye, than a rose garden on such a morning. I have walked down the paths carefully noting each of the seven hundred bushes, picking the choicest bloom here and there and comparing them one with the other, and I have declared that Betty is the sweetest, daintiest thing that ever grew and have wondered how I could have thought yesterday that Mildred Grant surpassed her.

Entering the garden at high noon Betty's complexion does not look so ruddy. Mildred Grant has a dozen freckles on her glorious face of yesternoon, while Hon. Ina Bingham, a blushing beauty deeply veined on her thick velvety pink petals is the beauty of the hour. At evening a walk along the same paths will show Helen Keller or Susanne Marie Rodocnachi or some other charmer which surpasses the Hon. Ina Bingham.

This is, I think, one of the principal charms of a rose garden; you can walk through it morning, noon and evening, month after month, and never see it just as it looked on any other day, so you can see how hard it is for a man who loves them all to specify the best twelve. I can however say that Antoine Revoire, Caroline Testout, Dean Hole, Grand Duc A le Luxembourg, Gruss an Teplitz, La France, Madame Ravary, Marie Able Chatenay, Etoile de France, Vicountess Folkestone, Thursa and Killarney, will give splendid results in your garden.

CLIMBING ROSES

Climbing roses are as easily grown as tomatoes, potatoes or cauliflower. This is the class of roses which everyone should grow wherever there is a bare piece of

fence, a stone pile, an old stump, a dead tree, a pergola, a veranda, the side of a house, a sloping bank or an overhanging wall that would look better covered with their rich shining green leaves, and during their flowering season with their masses of gorgeous flowers.

When you consider that for twenty-five cents one can get a good hardy climbing rose that our winters cannot kill, that will bloom the first year, and in three years will cover a wall or fence ten feet high and fifteen feet long, one wonders why there are so many bare and unsightly spots even on the premises of members of the horticultural societies, and all over Ontario.

Cannot each of you picture in your mind right now such a spot in your garden? Unless I am mistaken, we all can. Let me now suggest that the best work you can do for your horticultural society is to cover that spot with a climbing rose of any of the following varieties and the next year you can give half a dozen cuttings to half a dozen neighbors and they will emulate your example, because these climbing roses are grown on their own roots and the cuttings root readily in sandy soil. I have cuttings stuck in the ground September 22nd, 1909, which I dug up October, 1910, and which had three shoots six feet long, and they never got any attention during the year except a watering once in a while.

As there are only a couple of hundred different climbing roses in commerce, it is easier to choose a good twelve than among the hybrid teas. I would place Tausendchon at the head of the list, then Crimson Rambler or Flower of Fairfield which is colored like Crimson Rambler but it blooms on new wood, and flowers two or three times during the season; then Dorothy Perkins or Lady Gay which is a deeper pink and more fragrant; then Debutante which to me has the sweetest fragrance of any of the climbers I have grown. Reine Olga de Wurtemberg, a H. T. Climber, a brilliant scarlet with flowers of the size and shape of Tausend-

chon, is a gem. Climbing Mrs. W. J. Grant (H. T.) will give several crops of bloom during the summer. Helene, a single flowered climber with a lavender tinge through it. Hiawatha, a brilliant red with white eye and large yellow stamens, is one of the most showy. White Dorothy, a sport from Dorothy Perkins and Gardenia, the best yellow Wicliari-ana, will make a dozen, that will fill your waistcoat with pride every time you look at them during the summer.

One of the finest sights I saw in Toronto last summer was on West Roxborough Street, where half a dozen houses had Tausendchon, Dorothy Perkins and Crimson Rambler in bloom on their front verandas. Just imagine what a beautiful spot Toronto would be if every house had its climbing rose over the door or veranda. If you cannot get what you want locally, try Mr. H. Walsh Woods, Hole, Mass., who has a dozen or two of the best climbers on the market.

HOW TO MAKE A BED

Dig the ground 18 inches deep and put in one-third well rotted cow manure if you can get it. If the soil is very heavy clay dig in one-third sand and turn it twice. Plant H. T. Roses fifteen inches apart; H. R. Roses 24 inches in two rows with a 24 inch grass walk between the beds. The rose is a gross feeder and will make away with large portions of well rotted manure, bone meal or liquid manure.

Rose growing is the most delightful and beneficial of exercises. It chases the cobwebs out of the brain of the tired city worker; it helps keep the heart young, and once started it holds one's interest to the end. It's a game you can play

at whether you are twenty-five or seventy-five years of age, and you can enjoy it so long as you have eyes to see or a nose to smell with.

"If you love your city, town or village; if you want to be helpful to yourself, your fellow citizen and to posterity, there is no better way of expressing it than to plant roses that will gladden the eye, brighten the lives and warm the hearts of your families, your friends and your fellow citizens, and those who will take our places as the years roll round."

Paeonies not Blooming

What is the matter with my paeonies. They never bloom. I have taken them up and divided them. They grow luxuriantly, but do not bloom?—W. E. J.

The data you give is not sufficient to make a positive explanation possible. The only known diseases of the paeony are "leaf-drying fungus," "root-gall," and "urmatodes." These three diseases are rare, especially the first and second.

The effect of urmatodes, which are indicated by the growth of small nodules on the tuber, is to stunt the growth of the plant and cause it to be unthrifty and unproductive of bloom. Plants so affected usually recover a healthy condition by a division of the tubers and replanting in fresh soil. It does not seem likely that your plants have any of these diseases.

There is good ground for believing that some plants are degenerate. There are degenerate specimens in the animal kingdom, in both the human and the brute divisions. Doubtless there are "No Good" specimens in the plant kingdom

also. In the writer's paeony plot there is one variety of some hundreds of plants which show some half a dozen specimens that are "no good." These will be consigned to the rubbish-dump.

There are few plants so free from disease and from the ravages of insect enemies as the paeony. You may rely on this, that given a division of from three to five strong, well-developed eyes of a healthy tuber, planted in September in soil that would yield a good crop of corn or potatoes, and mulched with manure to prevent heaving by frost you will have some bloom in the following June. In the second year you will have better bloom than in the first year after planting, and in the third year you will have an abundance of normal bloom of the variety. Such a plant, if given an annual dressing of manure, will continue to flourish and increase in the number of stems and blooms for eight to ten years, after which it should be divided and replanted.—John Cavers, Oakville, Ont.

The Gardens of England*

Mrs. Allen Baines, Toronto, Ont.

In the October issue of THE CANADIAN HORTICULTURIST I stated that I would endeavor to forward a photograph of the schizanthus mentioned in my letter. The one I am sending is not clear, but will show the size and the wonderful mass of bloom, though the delicate and dainty tints of mauve and gold and pink and white must be left to the imagination.

Mr. Symes has been so successful in growing them that his method is worth noting. His main object is to avoid all unnecessary disturbance of root during growth. He therefore sows three or four seeds in three inch pots filled with a compost of three parts loam to two parts leaf mould, enriched with bone flour in the proportion of a six inch pot full to a barrow full of soil.

When some real leaves have been made, he thins these plants out to the strongest in each pot, and leaves these untouched until their roots have filled the pot. He then shifts them into six inch flowering pots and keeps them in a temperature of 55 degrees Fahr.

One corner of his greenhouse was filled with a fine group of hybrid single geraniums in shades of deep rose, blush pink, carmine and many soft warm tints of red. In each of these the truss was full and the individual flowers were of a size approaching that of the fancy pelargonium. In all of them the centre of the corolla and the base of each petal was white, which radiated and melted into the color of the flower.

Here are some of the names of these: Lady Curzon, Lady Chesterfield, Phyllis,



A Portion of the Same Ravine After Reclamation—No. 2

* Continued from October issue.



Schizanthus of Unusual Size and Wonderful Bloom
(See article "The Gardens of England," page 281.)

Madame John Laing, Oliver, A. K. Williams, Winston Churchill.

Before quitting the genial company of this Devonshire worker among the flowers, I must give you his recipe for a very fine plant food:

One bushel of soot soft coal, one half pound sulphate of ammonia, two pounds Thompson's plant manure; mix these together and put into a thirty gallon cask in the proportion of half a pint of the mixture to three gallons of water.

This recipe reminds us of the value of soot as a fertilizer. It has been used for

years in England, where soft coal is burnt in every house. The difficulty here has been the scarcity of soft coal soot, and now that drawback is a thing of the past. The growth of commerce and the yearly increase of factories with their forests of tall chimneys mean a huge accumulation of soot which will doubtless be welcomed by the cultivator as a valuable medium of nitrates and also of sulphate of ammonia, which while beneficial to the land, especially where cereals are to be grown, is destructive to harmful insects. I am glad to hear that Messrs. Simmers, of Toronto, intend to keep a stock of it.

Insects that Attack Vegetables*

L. Ceasar, B.S.A., O. A. C., Guelph, Ont.

Every vegetable grower knows to his sorrow the stout, smooth, dull-colored caterpillars that at night cut off his plants at the roots, or climb up them and destroy the buds or other parts. In the daytime they conceal themselves in the earth at the base of the plant or lie curled up under a board or any protection near by.

There are many kinds of cutworms; some do most damage to plants soon after they are set out in spring, others not until June or July and a few in August or even September. The adults of cutworms are moths—those dull, brown moths with about one inch of expanse of wings that fly around at night and come into the houses to the lights.

Most of the moths we see are cutworm moths. These lay their eggs, as a rule, where they think there will be plenty of food for their young when they hatch. Hence the part of our fields where weeds are allowed to grow wild is the place where the cutworms are most likely to trouble us the next year.

*An extract from an address delivered at the recent convention in London, Ont., of the Ontario Vegetable Growers' Association.

The eggs are in most cases, but not in all, laid in the fall and the young caterpillars which hatch from them feed for a while before winter and then remain hidden in the soil till next spring. As soon as vegetation begins they greedily search for food and, being already a considerable size, are very destructive.

MEANS OF CONTROL

We should try to keep our fields as free of weeds as possible throughout the season so that the moths will tend to go elsewhere to lay eggs. The destruction of rubbish as early as possible in the autumn, followed by ploughing, will help to destroy many of the eggs or young caterpillars. When the cutworms are present in the soil and causing destruction to plants they can in almost every case be held in check by the use of poisoned bran. I have myself used this on different occasions with excellent results, and I presume some of you have had similar good results with it. It is being used all over North America to-day as the standard remedy for cutworms of all kinds.

The formula is: Fifty pounds bran, one

pound Paris green, about one patent pail of water sweetened with a few pounds of sugar or a little molasses. Put the bran into a box of the necessary size, moisten it with the sweetened water until it is just wet enough to fall through the fingers easily without being sticky, then dust some of the Paris green over it and mix well; repeat until all the Paris green is thoroughly mixed in and can be seen on every particle of the bran. This can then be carried out to the field and applied about sundown so as to be fresh and attractive when the caterpillars begin to feed.

I apply it by taking a pailful on one arm and by walking down the row and dropping about a spoonful with my hand by the base of each plant. The cutworms evidently prefer this substance to the plants themselves, and thus are readily poisoned. If one suspects in spring that his plants will be attacked by cutworms he should scatter a little of the poisoned bran over the ground an evening or two before planting. Care should be taken not to let poultry get at this bran.

FLEA-BEETLES

Flea-beetles are tiny little beetles, usually not more than one-tenth of an inch long. Most of them are black, but some are a dusky green, and others are marked with yellow, red and other colors. They get their name from their habit of leaping away when disturbed. Probably the most troublesome of all is the striped turnip flea-beetle (*Phyllotreta vittata*).

This insect is black with a wavy band of pale yellow running down each wing-cover. It attacks almost all kinds of plants belonging to the order Cruciferae, such as turnips, radishes, cabbage and cauliflower, and I have seen it this year



A Big Bunch of Tomatoes

There were 53 formed tomatoes in this bunch, on one stalk. It is the Sunrise variety, the seed from which was secured in England. Grown by Louis V. Masters, Sardis, B.C.



Cucumber Vines in one of the Greenhouses of R. H. Ellis, Leamington, Ont.

In two houses, 60 by 100 feet in floor space, Mr. Ellis last spring produced 1,306 baskets of cucumbers that sold for a little over \$1,200. The plants were started about March 1st, transplanted in the ground without benches about April 15. Picking started May 13, and continued until the last of July. Some of the vines were sixteen feet long.

very abundant on some kinds of wild mustard.

The potato flea-beetle (*Epitrix cucumeris*) is another troublesome flea-beetle. It attacks potatoes, tomatoes and sometimes cucumbers. The insect is very small and black and eats tiny holes in the leaves, sometimes affecting them so severely that they die. Blight gets a chance to enter through the injured parts. There are several other kinds besides those mentioned that attack various kinds of vegetables.

Most of the damage from flea-beetles is done early in the spring just after the plants have been set out or the seed has appeared above the ground. In such cases it requires very prompt measures to prevent the destruction of the whole crop if the beetles are numerous.

(1) Late planting. From what has been said, one might hope that the beetles would soon slacken off, lay their eggs, and either disappear or not attack so voraciously plants that were sown late in the spring. This is usually the case, and in most seasons turnips can be sown with comparative safety after June 20th as can also many other plants.

(2) Poisoned Bordeaux mixture. In many cases the beetles can either be destroyed or driven away by spraying the plants as soon as they appear with Bordeaux mixture, to every barrel of which three or four pounds of arsenate of lead has been added. This will have to be repeated about every third day until the plants get well started, when it can be discontinued.

On account of the smooth surface of cabbage and some other plants it is well to add a sticker to the Bordeaux. This is made as follows: Boil together two pounds resin and one pound sal soda in

one gallon of water in an iron pot in the open until a clear brown liquid is formed. This will usually take from one to one and a half hours. Add the above amount to every forty gallon barrel of the poisoned Bordeaux. Many other remedies have been advocated for the destruction of flea-beetles, but poisoned Bordeaux has given the most satisfactory results.

Selling Vegetables in Hampers

By selling vegetables neatly packed in hampers to special customers in the large cities, enterprising growers in the United States have worked up, in some cases, large and profitable businesses. Efforts of this kind have been undertaken in a small way already in a few localities in Canada. There are opportunities for a great development of this line of work.

Mr. Fullerton, of Long Island, is one

of the United States growers who has made a distinct success of this line of work. "From Farm to Family Fresh," was the slogan Mr. Fullerton adopted when he sent out the first Home Hamper, an evolution of years of study of a means to place fresh vegetables in the consumers' hand with as little loss of time from field to table as possible. The six-basket hampers he has used have been proved a success, not only by Mr. Fullerton but also by other growers who have tried them. If you have to ship your vegetables to large city markets it may pay you to try this Home Hamper plan. It will cost something to get it introduced and to educate your future customers, but let one basket go into a high class city home and the prospects are that you will get another order.

A grower who has the capital and can afford to adopt this plan, could devise no better advertising plan than to secure a list of well-to-do householders in his market, send them a trial hamper of choice vegetables, and enclose a neat circular stating where the hamper can be secured regularly and at what price. Mr. Fullerton has sold the hampers regularly at \$1.50 each.

Every box or basket of vegetables is wrapped in paraffine paper. This protects the vegetables from dust and frost and retains the moisture, so that there is no wilting during shipment. How different from getting lettuce and other vegetables from the grocer's stand that are often wilted and anything but tempting.

The plan calls for the growing of a variety of vegetables. But this is no disadvantage. There is, perhaps, too much of a tendency of the grower to narrow to a few crops. A variety of crops makes it possible to rotate from growing a good many crops rather than a few.



Charter Members of the Quebec Vegetable Growers' Association

This association was organized one year ago at Macdonald College, Que. It now has about 500 members, and receives a provincial grant of \$400 a year. Last summer the association conducted experiments with fertilizers at eighteen different places. The second annual convention will be held this month.

The Canadian Horticulturist

Published by The Horticultural
Publishing Company, Limited

PETERBORO, ONTARIO



The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF THE ONTARIO, QUEBEC, NEW
BRUNSWICK AND PRINCE EDWARD ISLAND
FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription price in Canada and Great Britain, 60 cents a year; two years, \$1.00. For United States and local subscriptions in Peterboro, (not called for at the Post Office) 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than \$1.00.

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7. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT.

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1909. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1909.....9,456	January, 1910.....8,925
February, 1909.....9,310	February, 1910.....8,967
March, 1909.....9,405	March, 1910.....9,178
April, 1909.....9,482	April, 1910.....9,410
May, 1909.....9,172	May, 1910.....9,505
June, 1909.....8,891	June, 1910.....9,723
July, 1909.....8,447	July, 1910.....9,300
August, 1909.....8,570	August, 1910.....8,832
September, 1909.....8,605	September, 1910.....8,776
October, 1909.....8,675	October, 1910.....8,784
November, 1909.....8,750	November, 1910.....8,747
December, 1909.....8,785	

Total for the year 107,638

Average each issue in 1907, 6,627

" " " " 1908, 8,695

" " " " 1909, 8,970

Sworn detailed statements will be mailed upon application.

OUR PROTECTIVE POLICY.

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST.

PETERBORO, ONTARIO

EDITORIAL

WELL DONE, BRITISH COLUMBIA

We must take off our hats to the fruit growers of British Columbia. They have made good their claims to have one of if not finest apple producing districts in the world by holding the greatest apple show on record and capturing the principal awards with their own fruit. They deserve their success. The obstacles they overcame seemed, to weaker men, unsurmountable. They have proved that in addition to growing fine fruit they have a strong courageous people. They are Canadians, and Canadians in the East are proud of their success. We have heard so much about the apples produced in Oregon and Washington that we rejoice to know that our brother fruit growers in British Columbia have proved their ability to more than hold their own with the best that can be produced in those famous districts.

British Columbia growers accomplished what they did practically alone and unaided. Their success is the more remarkable. As we predicted would be the case, eastern growers did not show at Vancouver. This was not because of lack of interest or to any inclination not to help. It was due solely to the fact that there is no market for eastern fruit on the Pacific Coast nor is there much possibility that there ever will be. Eastern growers realized that the expense of exhibiting would be enormous and that the resultant benefits, even should they prove successful, would be practically nil. For these reasons, and these reasons only, they did not take part. Nor is there much prospect that these conditions will change for many years to come. Until they do, British Columbia growers need not expect to see much eastern fruit exhibited at their shows. As far, therefore, as the representative nature of the exhibits was concerned our contention that the show would be more British Columbian than national in character has been borne out.

In another light, however, the show was national in every sense of the word. It has quickened the pulse of fruit growers from one end of Canada to the other, it has given them a new pride in their vocation, renewed confidence in their future and a desire to see their provinces do as well as has British Columbia. For this reason we are deeply indebted to the fruit growers of British Columbia, and especially to the promoter of the recent great show, Mr. Maxwell Smith. Now let the East fall into line and do its part to help on the great cause of fruit growing in Canada.

ONTARIO'S OPPORTUNITY

The directors of the Ontario Fruit Growers' Association have been requested to consider the advisability of holding a national apple show in Ontario during the fall of 1911. The opportunity is a great one and should be utilized.

What Ontario needs more than anything else is leadership. We have the resources, the people, the markets and the opportunities. What we require is a few men of courage, faith and resource who will undertake to demonstrate these facts to the world. Our people are ready, nay, more! they are impatient to fall in behind such leaders and to support them to the limit. We must find these men. The opportunity should develop them.

The armouries in Toronto is the ideal location for the holding of this show. Red tape should not be allowed to prevent its use for such a purpose. It is not only of national but of international importance. If necessary, every member of Parliament in Ontario, and even those from other provinces as well, should be pledged to support the holding of the show in these buildings. Local conventions of fruit growers should be held in every leading apple producing section of Ontario and arrangements made for the exhibiting of large displays, in fact car load lots, from each section at the proposed national show. Arrangements will need to be made for careful pruning and spraying of orchards in each district, but with the assistance of the local branches of the department of agriculture, this should be possible, and so much greater will be the resultant benefit from the show.

As British Columbia finds a market for much of its fruit in the east it could be expected to make a large display, in fact it has already offered to do so. Quebec should have a full crop next year, and could be expected to make an extensive exhibit of very fine fruit. The Maritime provinces also would be likely to play an important part.

The Ontario government should put up at least \$15,000 and the city of Toronto \$10,000 towards the expenses. The little city of Vancouver gave some \$7,000 towards its recent show. The Dominion government might well contribute also. Better still, it could arrange to bring over from Great Britain parties of people likely to be interested in what could be seen at such a show. Thousands of dollars could be raised also by private subscriptions. These are merely suggestions as to a few things that might be done. By holding a greater apple show than has been Ontario can demonstrate at one stroke that it is the peer of any apple producing section in the world; it can increase the value of every acre of orchard land in the province; it can set new standards for fruit growing and packing; it can attract the best class of immigration; and it can prove that the fruit growers of the province are able to hold their own with the best fruit growers anywhere.

UNSATISFACTORY ARRANGEMENT

The announcement that hereafter the experiment station at Jordan Harbour, Ont., is to be in charge of a farm superintendent acting under the direction of the director of the fruit branch, whose office is located in Toronto, is thoroughly unsatisfactory. Fruit growers, particularly those in the Niagara District, should protest against it vigorously. In making, or in consenting to this appointment, for it is stated that Hon. Mr. Whitney had a say in it, Hon. Mr. Duff has given fruit growers strong reason to believe that he does not appreciate either the importance or the needs of the fruit interests of Ontario.

The new farm superintendent, Mr. A. D. Harkness, is a fine man personally and an experienced farmer and apple grower. He lacks the training that only a complete and thorough agricultural college course can supply, and that he requires to enable him to handle thoroughly and accurately such delicate work as is involved in the scientific breeding and hybridizing of all classes of fruit particularly the tender varieties. He has had practically no experience in the growing of such tender fruits as peaches and many varieties of grapes and pears, and yet he is to be largely in charge of a station where the growing of such fruits must

necessarily be made a specialty. These objections, however, would not be so serious were Mr. Harkness to be in constant touch with a specialist and recognized authority in these matters. He is not to have that advantage. The chief of the station, Mr. P. W. Hodgetts, is to be located in Toronto sixty miles away.

The appointment also is not fair to Mr. Hodgetts. As director of the fruit branch of the Department of Agriculture, secretary of the Ontario Fruit Growers' Association, secretary of the Ontario Horticultural Exhibition, and secretary of the Ontario Bee Keepers' Association, as well as being responsible for numerous other duties, Mr. Hodgetts has done excellent work but already he has as much work as one man can perform and do it properly. If hereafter he is to be held responsible for the performance of the exacting duties involved in the management of an experiment station, such as that at Jordan Harbour, it can only mean that the work he is now doing must suffer, and that at a time when there is urgent necessity that it shall be greatly extended if the fruit interests of the whole province are to receive the attention they require.

If the Jordan Harbour Experiment Station is to be made a success it must be placed under the control of the most experienced horticultural authority and experimentalist that can be found, and this man should be free to give his full time and attention to the work. It is somewhat remarkable that the government should have made this new and important rearrangement in the system of management without having consulted the prominent fruit growers and others who form the board of control of the station.

The announcement that the Dominion Department of Agriculture is arranging for another Dominion fruit conference next fall is welcome. It comes none too soon. In fact, it should have been held before this. There is no standard box for pears, cherries or peaches nor any standard package for peaches. There are problems arising in connection with the jam factories, cold storage, the express companies and transportation that require attention. In the event of Ontario deciding to hold a national apple show next fall, how would it do to have the Dominion fruit conference held in connection therewith or immediately thereafter?

The great success of the annual convention of the Ontario Horticultural Association last month in Toronto only serves to show what splendid work that organization is performing on behalf of the horticultural societies of Ontario. Every society in the province should affiliate with it if only for the selfish reason that by so doing it will best advance its own interests.

This year Mr. E. C. Beaman of Newcastle, Ont., and his son, W. E. Beaman, obtained 132 barrels of Wilmott pears off half an acre of ground. Some of these pears sold for as high as \$7.00 a barrel. They averaged about \$5.50 to the barrel, or \$726 to the half acre. How is that for fruit lands in Ontario? We have thousands of acres of land in Ontario that could do as well. It is time that we began in some systematic way, to make these facts known to the world.

I enjoy reading THE CANADIAN HORTICULTURIST very much. Am sure it cannot be anything but a great help to anybody interested in horticulture.—J. F. Weber, Kent Co., Ont.

B. C. National Apple Show a Huge Success

By the British Columbian Representative of The Canadian Horticulturist

BRITISH Columbia has done it. It has held the greatest apple show in the history of the world. In its first attempt it has surpassed the National apple shows held in the great fruit districts in the United States. It has excelled, to an extent that almost makes a comparison to its great show a slight, the greatest shows of the kind ever attempted in eastern Canada. It has set the people of Vancouver and of British Columbia wild with enthusiasm over the great fruit resources of the province and incidentally it has advertised to the world, as nothing else could have done, the tremendous possibilities for fruit production in this province.

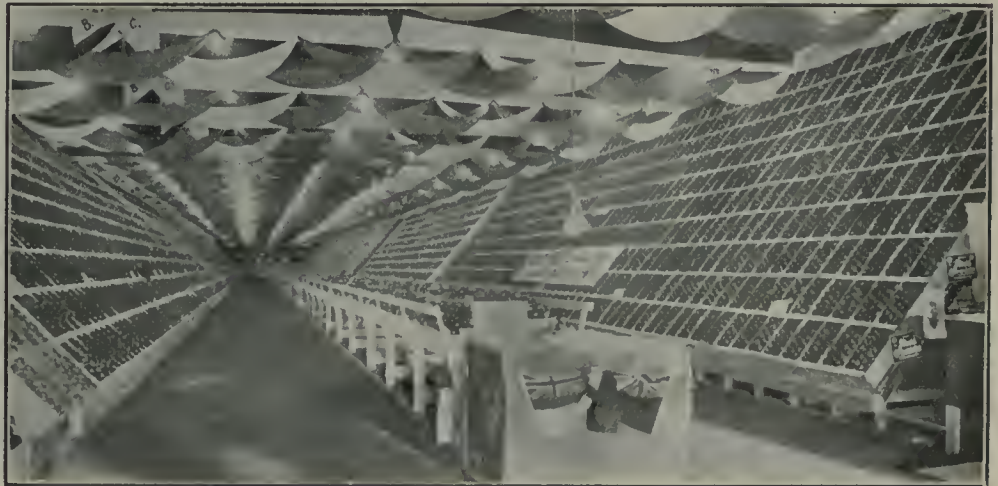
From start to finish the show, which was held in Vancouver, and lasted from October 31 to November 5, surpassed the most sanguine expectations of even the most optimistic people of this province. It will go down in history as having been a wonderful achievement for those who were behind it. The fact that it was all put

Mayor Taylor, of Vancouver, and other notables took part in the opening proceedings.

Those who had visited the Big Show in Spokane in the fall of 1909, were unanimous in declaring that both for the number of exhibits and the quality, appearance and color of the fruit shown, the Vancouver display excelled that made in the United States city a year ago. Prof. Van Deman, the United States expert on apples, declared that he was unable to find language with which to express his admiration of the superb beauty and quality of the winning earload of Jonathan apples shown by the Kelowna Farmers' Exchange.

EXTENT OF THE EXHIBITS

Some idea of the extent of the exhibits may be gained from the fact that there were 1,300,000 apples shown. There were 10,000 boxes of 194 different varieties of fruit. There were 3,424 distinct exhibits. Of these there were twelve car load entries. There were 79 entries in the ten box class, and 724 single box entries. The plate ex-



A Portion of the Exhibit of Boxed Fruit Shown in the Annex at the Canadian National Apple Show at Vancouver

(Note that the exhibits are ten boxes high on both sides.)

through in less than one year's efforts adds to the wonder.

So great was the attendance at the opening ceremonies many were unable to gain admittance. A large procession, comprising bands, the invited guests, mounted police, automobiles, members of the city council, and others lined up and marched through the city to attend the opening proceedings on the first day. Previous to this a crowd had already gathered in the building. By the time the procession reached the hall, the entrance became blocked, and large numbers were unable to gain admission until some of these who attended the formal part of the opening had retired. It is estimated that during the week over 30,000 people attended the show. The gate receipts amounted to over \$10,000.00.

THE GREATEST EVER

"The Greatest Apple Show in the Greatest City, of the Greatest Province in the Greatest Dominion in the Greatest Empire in the history of the World" were the words of Manager Maxwell Smith in a rousing speech on the opening day, and every one in attendance was ready to agree with him. The Premier of the province, Hon. Mr. McBride, Hon. J. W. Bowser, Bishop De Pencier, Lieut.-Governor Patterson, Martin Burrell, M.P.,

hibits totalled 1,944 entries. There were eight district displays. By-products, and other industries in touch with apple growing, were represented by 119 entries. There were exhibits from the neighboring states of Washington and Oregon, and from Tasmania, as well as some from Eastern Canada, shown by the Dominion Department of Agriculture, so that the show was not only national but international in character.

THE OUTSTANDING FEATURE

The centre of attraction was the ear of Jonathans packed by the Kelowna Farmers' Exchange, bearing the blue ribbon as best ear of Jonathans, and the decorated blue ribbon for first in the earload sweepstakes. Like all the ear lots this contained 600 boxes. So even was the grading that a uniform pack was maintained—120 apples to a box, no more, no less, 72,000 apples to the ear. So uniform and firm was the pack, so perfect the alignment and so correct the bulge that the judges declared it perfection by giving it full points in everything but rating, or 990 out of 1,000 points. Spitzenberg and a couple of other varieties are rated at 10 (highest quality) by the American Pomological Society, while Jonathan is rated 8.9. Those in a position to know unhesitatingly declared it the most perfect ear of apples

ever turned out anywhere. The packing was done under the supervision of Mr. James Gibb, head packer at the Exchange, who will be a judge at the Third National at Spokane, Wash.

The Dominion Department of Agriculture, Ottawa, staged an exhibit at the far end of the annex, which drew an interested crowd at all times. In the boxed fruit of standard kinds from the different provinces, the more elongated form of British Columbia apples was plainly seen by contrast. Samples of the best hybrids that have so far been produced between the iron-clad crab species from Siberia (*Pyrus Baccata*) and the hardiest cultivated varieties, were intensely interesting. This systematic breeding of pedigreed hardy apples being perseveringly carried out at the Central Experimental Farm is hoped to result in a race hardy enough for the prairies. Viewing the results and knowing that many of these productions have already borne fruit in Manitoba and Saskatchewan, one could scarcely help thinking greater men than Burbank are among us. We see and hear too little of the patient, untiring, far-reaching work of our Canadian Experimental Farms and of our Dominion Horticulturist, W. T. Macoun, Ottawa.

THE CONCESSIONS

The concessions were located mainly on a long, well-arranged lane in a wing of the main building. Nursery firms, spray manufacturers, lunch counters, fruit publications, the local press, orchard implements, cider manufacturers, and the ever present land agent of the west, were all represented. Makers of spraying machinery and the eastern nurserymen, somehow, missed their opportunity. In bringing the famous 48th Highlanders military band

from Toronto to Vancouver, the management made no mistake. The public gave the bandmen a wildly enthusiastic reception.

PRINCIPAL PRIZE WINNERS

Chief interest centred in the placing of the awards for the carload exhibits. Twelve carloads of 600 boxes each were entered. The prize winners were as follows:

Northern Spy.—1, Coldstream Estate, Vernon, B.C., \$500.

Spitzenberg.—1, Sawyer Land Co., Sunnyside, Wash., \$500.

Yellow Newtown.—1, Medford Commercial Club, Medford, Ore., \$500; 2, C. Starcher, North Yakima, Wash., \$250.

Grimes Golden.—1, Sawyer Land Co., Sunnyside, Wash., \$500.

King of Tomkins.—1, Victoria Fruit Growers' Exchange, Victoria, B.C., \$500.

Jonathan.—1, Board of Trade, Kelowna, B.C., \$500.

Mixed.—1, Summerland Agricultural Society, Summerland, B.C., \$500; 2, Board of Trade, Vernon, B.C., \$250; 3, M. Horan, Wenatchee, Wash., \$100.

A mixed carload from Grand Forks, B.C., was unique in arrangement. Boxes of green apples were so set among boxes of red that the words British Columbia stood out plainly.

For the best carload in the show the first prize consisted of Central Okanagan Lands Ltd., \$500, the management \$500, and a \$100 gold medal—total, \$1,100; second, A. J. Smith, Okanagan Falls, five acres land \$750, or cash \$500 and \$50 gold medal from the management; third, \$25 silver medal. The awards were:

1, Kelowna Board of Trade, car Jonathan.

2, Summerland Agricultural Society, mixed car.

3, Medford Commercial Club, Ore., car yellow Newtown.

DISTRICT DISPLAYS

For the best decoration on 12 by 21 feet floor space. There were several entries, and some beautiful decorations.

1 (cash \$500, gold medal \$100), Kelowna.

2 (\$250 cash, \$50 silver medal), Grand Forks.

3 (\$100 cash, \$25 silver medal), Vernon.

4 (\$50, \$10 bronze medal), Keremeos.

5 (\$25 cash and diploma), Salmon Arm.

A cheque for \$500, handed to Mr. Smith by a Vancouver firm, to be awarded in whatever class he pleased, but not allotted till opening day, was made a special prize for the winner in this class. The first premium was, therefore, \$1,100 in all.

Limited displays, consisting of two boxes, two barrels, two baskets, two jars, two plates, limited to 6 by 12 feet space:

1, Salmon Arm, with an irresistible display all in red. The fruit was mainly Jonathans, the barrels were Spies, and it is safe to say more perfect specimens were never exhibited—\$250.

2, Kelowna—\$125.

3, West Kootenay—\$50.

4, Keremeos—\$25.

TEN BOX CLASS

Northern Spy.—1, F. R. E. DeHart, Kelowna, \$100; 2, Coldstream Estate Co., Vernon, \$50; 3, R. H. Fortune, Salmon Arm, \$25.

Gravenstein.—1, Doyle & McDowell, Willow Point, \$100; 2, Van Sant & Whipple, Olga, Wash., \$50; 3, R. Owen, Mt. Leham, B.C., \$25.

Fameuse.—1, Peter Reid, Chateau Bay, Que., \$100.

Spitzenberg.—1, C. L. Green, Wenatchee, Wash., \$100; 2, C. J. Thomson, Sum-

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merland, \$50; 3, F. R. E. DeHart, \$25.

Yellow Newtown.—1, C. L. Green, Wenatchee, \$112.50; 2, F. R. E. DeHart, Kelowna, \$50; 3, C. Starcher, North Yakima, Wash., \$25.

Grimes Golden.—1, F. R. E. DeHart, Kelowna, \$100; 2, Robert Lawson, Grand Forks, \$50; 3, Mrs. John Smith, Spence's Bridge, \$25.

King of Tompkins.—1, T. G. Earle, Lytton, \$100; 2, R. H. Fortune, Salmon Arm, \$50; 3, J. Spiers, West Kootenay, \$25.

McIntosh.—1, F. R. E. DeHart, Kelowna, \$100; 2, C. L. Green, Wenatchee, Wash, \$50; 3, R. H. Fortune, Salmon Arm, \$25.

Jonathan.—1, John Conlin, Kelowna, \$110; 2, T. J. Black Wenatchee, Wash., \$50; 3, F. R. E. DeHart, Kelowna, \$25.

Coz's Orange.—1, F. R. E. DeHart, Kelowna, \$100; 2, A. Scott, West Kootenay Fruit Exchange, \$50.

Winesap.—1, Tedford Bros., Wenatchee, Wash, \$100; 2, H. L. Tedford, Wenatchee, Wash, \$50; 3, Yakima Co. Horticultural Union, North Yakima, Wash., \$25.

There was a long list of awards in the five box, single box and plate classes. In the shipping pack J. W. Cockle, Kaslo, (Kootenay district) carried off the coveted \$25 medal with a box of wrapped Stark. Among the twenty odd competing entries were some from the leading packing houses in British Columbia and Washington. In this class the boxes were put on exhibition nailed ready for shipment and not opened and judged until the last day of the show.

The success of the show was due mainly to the author and moving spirit of the enterprise, Mr. Maxwell Smith. He had helpers, among whom were secretary L. G. Monroe, but his tireless energy, his boundless belief in things British Columbian

and Canadian was the mainspring of the whole great undertaking.

That a Canadian province and that about the youngest among apple growing provinces, has with little backing from other parts of Canada held such an amazing exhibition should impress Canadians deeply with the importance of our dominion in the world's apple supply. The Canadian National Apple Show was organized as a movable event. Which province is to claim the next one? Will Ontario or Quebec

with their immense apple growing possibilities go to it and by spraving and careful orcharding grow a crop that will make a Second National? Or will some prairie city providing neutral ground for the orchard districts of the east and west, take it up and afford the dwellers of the great wheat country a glimpse of our apple resources? Wherever it is held, let those behind it see that it sets still higher standards of which Canadians all over the Dominion may well feel proud.

Greatest Horticultural Exhibition in America

THERE was held in the arena, Toronto, from November 14 to 19, the seventh annual Ontario Horticultural Exhibition. This is freely admitted to be the largest exhibition of the kind held annually on the continent and one of the largest horticultural exhibitions held in the world. Seven years ago, when the first exhibition was held, many doubted if sufficient interest would be shown to enable it to be made an annual affair. The display of fruit shown in commercial packages included only eleven boxes and seventeen barrels of apples. The packing was so poorly done that the late Hon. John Dryden, then Minister of Agriculture for Ontario, expressed chagrin and an intention to bring in experts from the States to show Ontario growers how to pack their fruit.

Last month there were shown 1,136 boxes and 194 barrels of apples. There was hardly a poorly packed box in the lot. Most of the fruit was packed perfectly. In addition there were shown 49 boxes of pears, 627 plates, 74 cones and 71 single specimens of apples besides a few plates of pears, grapes and peaches as well as 386 jars of

canned fruit. The total number of exhibits was 2,741. This was an increase of 405 over last year.

More boxed fruit was shown than ever before. The number of exhibits of apples in boxes was more than double those of a year ago. There was not as many entries of apples on plates but this was due to a change in the prize list which removed the incentive for counties, in the county competition, to make such exhibits.

THE GENERAL ARRANGEMENT

The impression as one entered the hall was most pleasing. The display of flowers, including groups of orchids and chrysanthemums as well as cut chrysanthemums, carnations and roses and seven tables decorated with flowers, was very attractive. Leading away from the main door was an aisle lined by cedar posts and festooned with moss and smilax. To the left could be seen the large display of boxed fruit made by the Norfolk Fruit Growers' Association. At the extreme end of the hall to the front a house made of apples and shown by the fruit growers of Northumberland and Durham caught the eye. In between were rows of tables containing the

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LONDON

exhibits of plate fruit, vegetables and flowers. In practically every way the standard of the exhibition was ahead of previous years.

GREAT EDUCATIONAL VALUE

The outstanding feature of the exhibition was its great educational value. Fruit growers from all parts of the province and beyond were gathered there to gain the latest information pertaining to the industry. This year's attendance surpassed all former records. A feature of the exhibition was the large number of new exhibitors, principally young men, which showed that an important new element was making itself felt in the exhibition and therefore throughout the country.

SPECIAL EXHIBITS

The largest exhibits were found in the apple classes. In addition to those made by private individuals there were educational exhibits by the Dominion Experimental Farm at Ottawa, the Ontario Government's Experimental Station at Jordan Harbor, by the Branch of the Department of Agriculture in Simcoe County, as well as exhibits made by several counties notably Northumberland and Durham, Leeds and Grenville, and Ontario.

The largest display was made by the Norfolk Fruit Growers' Association. It comprised 325 boxes 65 boxes long by five high. Such a large exhibition was never made before in eastern Canada. It showed the increase that is taking place in box packing in Ontario.

A NOVEL DISPLAY

A house of apples erected by the united counties of Northumberland and Durham proved a splendid advertisement of the fruit possibilities of those counties. In this exhibit there were 250 boxes and 70 barrels of apples. The sides, pillars and roof of the apple house were composed of number

one fruit. Five barrels of apples were used on the roof alone. The entire exhibit was sold to be shown at the London exposition in 1911 where it should do Canada credit.

Ontario County had a neat display of 17 boxes and 30 barrels of apples. A feature of this exhibit was cards naming the fruit best adapted for growth in the county. Some of the other exhibits also contained cards giving similar information.

The counties of Leeds and Grenville made an exhibit which attracted general attention. At each end of the long table there were displayed 44 boxes of apples. In between were shown pyramids of richly colored fruit from the St. Lawrence Experimental Station at Maitland, as well as plates of apples of very high quality. This exhibit was a splendid advertisement for these counties.

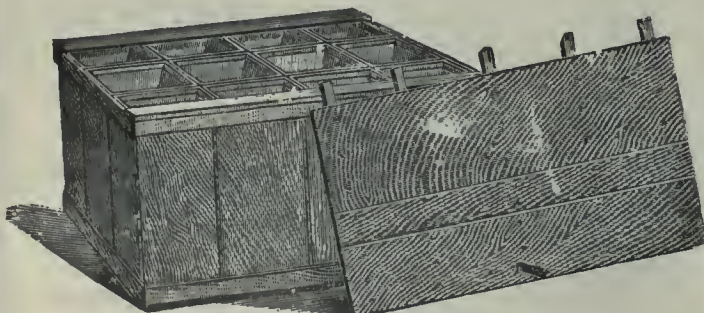
COMMERCIAL PACKAGES

In the collections of fruit in commercial packages the St. Catharines Cold Storage and Forwarding Company got first as usual, with F. G. Stewart, of Homer, second. In the display of apples not in commercial packages the placing was the same. The St. Catharines Cold Storage Co., also had an excellent exhibit of pears, peaches and grapes shown in boxes and baskets as well as on plates.

A feature of the exhibit made by the Dominion Experimental Farm was a very fine display of 100 seedling apples of good quality originated at the farm under the direction of Canada's noted experimentalist, W. T. Macoun, Dominion Horticulturist. The work being done in this way at Ottawa is destined to prove of untold value to the Dominion. There was also shown six boxes of apples from Nova Scotia, one from Quebec, six from Ontario and eight from British Columbia for comparison purposes. Three boxes of peaches that had

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been withheld from the Experimental shipments to Great Britain were also on display. The apples from New Brunswick that were shown were richly colored and well packed. They were the best exhibited from any outside province.

MONEY IN OLD ORCHARDS

An exhibit which showed clearly that it pays to give old orchards good care was that made by the branch of the Department of Agriculture in Simcoe county. The fruit which was equal in quality to the best had all been taken from the demonstration orchards conducted by Mr. I. F. Metcalf. For some years, until this year, these orchards had produced little but number two apples and culls. In the centre of the exhibit were photographs showing the condition of the orchards before and after treatment this year.

Canned fruit formed a prominent part of the exhibit from Prince Edward County. Baked apples were given away to demonstrate the superior cooking quality of Prince Edward Tolman Sweets. The Jordan Experiment Station included in its exhibit apples from sprayed and unsprayed trees which demonstrated that it pays to spray.

Criticisms of the packing of the fruit

were given by Prof. J. W. Crow, Guelph. According to Prof. Crow the packing this year showed a decided improvement. In most cases the boxes were just full enough and with the proper bilge. Criticisms of the barrel classes were made by P. J. Carey, Dominion Fruit Inspector.

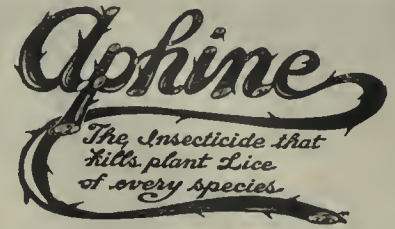
Several concerns made displays of spraying machinery. An exhibit made by The Niagara Brand Co., attracted particular attention. A picture of a tree, natural size, was sprayed and the simplicity of the operation was evident to all.

Altogether this exhibition was the most successful ever held by the growers' association. "It's great. I don't know what you brought me over here for," said Mr. B. J. Case, President of the New York State Fruit Growers' Association, who had come over at the request of the association. "The possibilities of Ontario as evidenced by the fruit on exhibition at this fair, are enormous." Similar expressions were heard from other visitors. The success of the exhibition was so great that on all sides the view was freely expressed that a National Apple Show should be held in Ontario next year. A move in this direction has already been made. Ontario could make a great success of such a show.

Ontario Horticultural Association Convention

THE Fifth Annual Convention of the Ontario Horticultural Association, held in Toronto, Ont., Nov. 17, 18, showed that excellent work had been accomplished by the horticultural societies of the province during the past year. The president, Mr. R. B. Whyte, of Ottawa, pointed out that the ideal of the association should be to have an assembly of delegates to represent the whole province to

devise the best means of advancing the interests of all the societies. He showed that the persistent efforts of the association had secured from the government an increase of twenty-five per cent. in the government grant to the local societies. The association should also receive credit for the excellent reports issued during the last four years. The societies which are doing the best work are those which affli-



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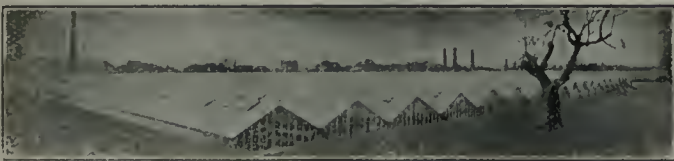
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2 acres of sour Cherries have netted us \$450.00 per acre each Season for the last five years. 20 acres of wheat nearby this year brought but \$350.00 for the 20 acres. Why grow wheat when Cherries bring such good returns?

Our Cherry trees have made an exceptionally fine growth this year. Every tree strictly first grade with good tops and well rooted. The Early Rich. and Large Montmorency are the money makers. Why not plant some in the spring?

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Lands for Fruit Growers

The largest profits are to be made by men who know how to grow apples and other fruit, and who will locate in the Apple Growing Districts of Virginia, North and South Carolina, Georgia, Tennessee and Alabama—the great Southern Appalachian Fruit Region. Apples have long been grown most successfully in this region, but its people have only come to realize what splendid crops of fruit they can make, people in other sections are just learning of and appreciating the wonderful opportunities offered there for the fruit grower. There is natural irrigation, the well-nigh perfect air drainage, climate and soil to produce the largest, most beautiful and finely flavored fruit. The location is delightful for residence, is at the door of the greatest consuming population of the continent, and but a few hours from the world-shipping ports of the Atlantic seaboard. A 20-acre orchard in Virginia last year produced \$18,000 worth of fruit, the yield of a single Pippin tree brought \$124, that of a Winesap tree \$80, a 12-year-old Georgia tree bore 57 bushels, a 7-year-old Winesap tree in North Carolina 15 bushels.

Fruit growing lands which will do everything that the most valuable lands in the Ontario or Western New York apple districts will do, can be bought at \$20 to \$50 an acre, and will produce good farm crops while the orchard is coming to maturity. The Southern Appalachian Apple Region will become the most famous and the most profitable in America. An investigation will convince you of the great opportunities there, especially for the practical, energetic young man. Write me for copies of The Southern Field and other publications telling about fruit growing and other lands in the Southeastern States.

M. V. RICHARDS,

Land and Industrial Agent, Southern Railway
Room 4, 1320 Pennsylvania Ave., Washington, D.C.

ate with the association. He would have it compulsory on every society to join this association before they get their grant, and also thought that the Government should pay the railroad expenses of one delegate from each society to the convention.

The report of the treasurer, H. B. Cowan, Peterboro, showed a balance on hand of \$96.18.

SUPERINTENDENT'S REPORT

The report of Superintendent J. Lockie Wilson indicated increasing interest in horticultural matters throughout Ontario. It showed how in Great Britain and on the continent the subject of school gardens had occupied the attention of the government and county councils for some years. Even in Russia every school receiving public funds has to maintain a school garden, a plot of forest trees and an apiary. In the county of Surrey, England 8,300 pupils are being taught gardening and evening classes are held for those who cannot attend in the day. In the United States much also is being done. Lawn and garden competitions had been held by several Ontario societies during 1910. Even in New Ontario splendid work was being done by societies. The increase in membership this year amounted to over 800 and in expenditure by the societies to \$600. There are sixty-four societies. The Toronto Society had shown the largest increase in membership, it being from 297 to 820. Thirty-seven societies had affiliated with the provincial organization.

FRUIT GROWING IN CITIES

Mr. Alex. McNeill, Ottawa, spoke on "Fruits for City Gardens," dealing with its aesthetic side and also showing how they call their owners back to nature. Quality rather than quantity should be

sought. Care should be taken to have the city lot dry and to dig it deep. Trench it as deep as three feet and fertilize well. Sunlight and air are absolutely necessary. Grow everything possible and keep only quality in view. Use dwarf stock in small gardens.

Prof. S. Blair, Macdonald College, Que., said that the soil conditions should be right. The soil in many yards is heavy clay from excavations and has to be worked up to get fertility. To get sunlight shade trees must sometimes be sacrificed. A hand wheel hoe is most useful for cultivation and keeping down the weeds. Strawberries, gooseberries, currants, red, white and black; grapes, raspberries and dwarf apples can all be successfully raised in a back garden. Several members described the wonderful quantities of fruit they had raised on a small plot of ground.

Miss Blacklock, Toronto, gave an interesting account of some of the gardens she had visited during her trip in England last summer. This paper will be published in THE CANADIAN HORTICULTURIST.

Mr. Watrous, Secretary of the American Civic Association, Washington, D.C., gave a short address extending the greetings from his association, which represented many hundred thousand members, embracing Canada and Mexico, as well. He hoped that representatives would be sent to his association convention on December 17th.

Hon. J. C. Duff, Minister of Agriculture, congratulated the association on the success of the convention, which was the largest in the history of the organization.

Hon. Col. Matheson, provincial treasurer, spoke with special reference to the fruit industry, of the value of which the exhibition at the St. Lawrence Arena was

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First Quality Valley and bench land under the largest and best Irrigation System in British Columbia

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Beautiful and healthy climate; no long periods of damp or rainy weather to injure the growing fruit, BUT abundant sunshine to make the apple blush.

Our lands surround the City of Vernon where there is a ready market for all garden produce. The Canadian Pacific Railway runs through our property, affording quick transportation facilities to outside markets.

Lots contain from 5 to 15 acres each, and the price depends upon the location and distance from Vernon.

The surface is absolutely clear of timber and brush and ready for cultivation.

Price is \$250.00 per acre, one sixth cash and balance in five equal annual payments with 6 per cent. interest. This price may seem high to some people but the returns are correspondingly high. There are many cases each year where a 10-acre orchard produced a return of \$1,000.00 per acre when the best care has been given to the orchard.

At Vernon we have an office and a manager who is capable of giving very valuable assistance to anyone desiring such in making a selection of a fruit lot. If purchasers desire, the company will contract to plant and care for the young orchard for four or five years until they are ready to undertake the management themselves.

If you are interested in B. C. Fruit Lands, we will be glad to give you further information.

LAND AND AGRICULTURAL COMPANY OF CANADA

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a healthy sign. He was glad to see that the horticultural societies were increasing in membership. Where it was feasible, he advocated the doing away with fences in front of houses so that passers-by could enjoy the beauties of the garden as well as the owners. The love of flowers humanizes and makes the home attractive.

CIVIC IMPROVEMENT

Mr. W. S. S. Armstrong, a representative of the Toronto Civic Guild, referred to some of the work which had been done by the Guild working in co-operation with the Civic Improvement committee appointed by the city council. Work on similar lines could be taken up by any town or city. School gardens in cities, he said, would make an opening for inducing many boys who now live in cities to go out to the country. These would be successful on farm and garden instead of being merely mediocre men in town. Last year 50,000 packages of seed were given to children in Toronto to plant at home. There are school gardens at the King Edward and Park Schools, Toronto. The main influence for extension of horticultural knowledge, however, lay with the individual.

Principal Scott, Normal School, Toronto, said that teachers in public and rural schools can do much more than they are now doing to increase the knowledge of horticulture. Nothing interests one so much as an investigation into flowers. Observation of common things around us furnishes us with information. Gardeners furnish the smallest number of criminals in the professions.

WORK IN THE UNITED STATES

Mr. Richard D. Watrous, Secretary of the American Civic Association, D.C., gave some insight into Civic Improvement as carried out in some of the cities in the United States, illustrating the same by a

series of limelight views. One idea is to make the capitals of the various states models for the other cities and towns in these states. He was pleased that Toronto was formulating a plan of civic improvement and was heartily in favor of anything that would help to draw the boys from the city to the farm. The first view showed a street which can be found in many cities and towns all littered up with debris, insanitary and not tending to morality. Many scenes showing transformations from uninteresting features to quite beautiful surroundings were displayed. Examples of "Tree Butchery" by telephone and telegraph employees, where the trees were ruined in shape and vitality, were given. The bill board nuisance also received the attention of the speaker.

OFFICERS ELECTED

The election of officers resulted as follows: President—R. B. Whyte, Ottawa; 1st vice-pres., Rev. A. H. Scott, Perth; 2nd vice-pres., J. P. Jaffray, Galt; treasurer, H. B. Cowan, Peterboro; secretary and editor, J. Lockie Wilson, Toronto. Directors—F. B. Bewden, Vankleek Hill; W. Jeffers Diamond, Belleville; J. H. Bennett, Barrie; J. C. McCulloch, Hamilton; Thos. Cottle, Clinton; G. W. Tebbs Hespeler; W. W. Gammage, London. Auditors—A. O. Jeffrey and Colonel Kent.

Rev. A. H. Scott and J. Lockie Wilson were appointed delegates to the American Civic Association, Washington, D.C. Major Snelgrove was elected as representative to the Canadian National Exhibition.

DISTRICT REPORTS

Reports of the districts were read by the directors representing each district, and was universally of a very favorable character. The distribution of seeds to school children even of quite tender years

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had been very beneficial and very great interest had been shown in the competitions for the flowers raised from these seeds. The report of the Toronto society was an excellent one. Toronto now has the largest membership in the Province, 820 in all.

W. G. MacKendrick, Toronto, the president of the Toronto Horticultural Society, whose beautiful garden on Toronto Island is visited each year by large numbers of people, spoke on "Outdoor Roses for Ontario." This paper is published elsewhere in this issue.

The subject, "A Modern Gladiolus," was ably treated by H. H. Groff, Simcoe, the world's most famous hybridist of this variety of flower, who gave a description of the various species as existing to-day. Species of the best quality seldom show the best vitality. He was making considerable progress in the production of a pure yellow in the species "Primulius." He preferred plants of upright growth. The development of one characteristic is generally injurious to the other characteristics. The speaker showed some ears of corn showing improvement effected by "hybridization," with an increase in production of 150 bushels per acre.

The reports of the committees on Nomenclature and Novelties were read by Mr. John Cavers of Oakville, Ont.; and by Prof. W. T. Macoun, of Ottawa. They showed that work that will be very valuable to those interested in flowers and plants had been accomplished.

VISITORS FROM THE STATES

Mr. C. C. James, Deputy Minister of Agriculture, introduced a number of superintendents of education from the Southern States who were in Canada in quest of information. In the course of his

speech he said that in spite of many discouragements there were signs of improvement in agricultural and horticultural matters, and he congratulated the association on the increasing interest being taken in the work of the horticultural societies.

Supt. Joiner of North Carolina, and Supt. Egglestone, of Virginia, spoke briefly, and said that the South was greatly interested in what is being done in Canada.

President G. C. Creelman, of Guelph, emphasized the importance of demonstrating to the people the value of the work being done by the horticultural societies. Make the work of the societies attractive and the people will take hold.

VINES AND SHRUBS

Prof. H. L. Hutt, of the Ontario Agricultural College, Guelph, gave an address on "Vines and Shrubs for the Small Garden." He emphasized the importance of making a careful plan before starting to lay out a garden. Follow the plan of a landscape artist, if possible, bearing in mind what it will look like when grown up. Plant fairly thickly and thin out afterwards. Plant against walls and buildings in nooks and corners, and screen the fences with shrubs.

The four honorary directors—Prof. H. L. Hutt, Guelph; Mr. W. T. Macoun, Ottawa; W. B. Burgoyne, St. Catharines; and Major H. J. Snelgrove, Toronto—were re-elected.

Mr. Wm. Hunt, O.A.C., Guelph, described the science and practice of plant propagation, illustrating his talk by specimens mounted on card board. He showed that it was by no means so hard to propagate plants as was generally supposed, providing that the environment and locality were considered.

C. W. Nash, Toronto, spoke on insect



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Wherever Fruit Excels Niagara Spray is Used

Our Slogan, expressing a plain and acknowledged truth. It does not follow that the mere using of **NIAGARA SPRAY** produces good fruit, for thoroughness and proper application are important, so also are other essentials in good orcharding, but **we do say** that wherever, on the American continent, a good and clean fruit is produced—there **Niagara Spray** is used—because **NIAGARA IS MADE RIGHT AND STAYS RIGHT.**

Results in Ontario, Nova Scotia and New York, as well as elsewhere this season, demonstrate the superiority of **NIAGARA LIME-SULPHUR** over Bordeaux for Apple Scab.

DO NOT NEGLECT THE FIRST DORMANT SPRAY IN SPRING.—This is the most important spray and controls San Jose Scale, Oyster Shell Bark Louse, Blister Mite, Aphis and all insects wintering on trees. It also lays the foundation for later sprays for Apple Scab.

In districts affected by San Jose Scale, Spray **NOW**, and **AGAIN** in Spring.

and bird enemies of the garden. He showed how the eggs of the moth of the Stalk Borer are deposited on weeds, etc., in October, although the borers do not enter the stalk until later. One remedy is to burn all stalks and weeds in the fall. Wire worms, white grubs, cutworms, etc., are too prevalent, due to the slaughter of insect eating birds. They flourish where land has been long in sod. When the insects get into their cell and are not disturbed they die quickly. Plowing the land up late in the fall is one way of getting rid of them. Insects are divided into those that masticate and those which suck the sap. Against these latter poi-

sons are no use. The proper way to destroy them is to apply an irritant or something that will choke the pores of the insects. English soft soap is excellent for this. Caustic potash, two pounds, to one gallon linseed oil makes soft soap. Arsenate of lead, two or three pounds, to forty gallons water is the best spray for insects which masticate. If more tree planting was practised birds would increase, and there would be a decrease in injurious insects. Toads are an important factor in destroying insects. The proceedings of the convention should result in much benefit to the work of the horticultural societies of Ontario.

Ontario Fruit Growers' Important Discussion

MATTERS of unusual importance to the fruit growers of Ontario were discussed at the annual convention of the Ontario Fruit Growers' Association held in Toronto, November 16 and 17. The directors of the association were instructed to consider the advisability of holding a National Apple Show in Ontario next fall. There is a strong probability that such action will be decided upon. Resolutions were passed dealing with the pilfering of fruit by express companies, advocating the appointment of special inspectors to deal with the diseases Little Peach and Peach Yellows, advising that no reduction be made in the tariff on fruit without the Fruit Growers' Association being consulted and advocating the giving of lectures in public schools dealing with insects and fungous pests. The announcement was made that a Dominion fruit conference will be held in Ottawa next fall and delegates were appointed.

The following directors were appointed:

Wm. Alford, Ottawa; Harold Jones, Maitland; W. H. Dempsey, Trenton; Wm. Stanton, Oshawa; W. H. Gibson, Newcastle; L. A. Hamilton, Lorne Park; J. W. Smith, Winona; A. Onslow, Niagara-on-the-Lake; Jos. Gilbertson, Simcoe; D. Johnson, Forest; R. R. Sloan, Porter's Hill; F. M. Lewis, Burford; Adam Brown, Owen Sound; and Prof. J. W. Crow, of the Ontario Agricultural College, Guelph.

EDUCATIONAL FEATURES

The demonstrations in spraying and in fruit packing given at the Ontario Horticultural Exhibition, proved an interesting educational feature. The practical talks on box and barrel packing by Mr. Alex. McNeill, Chief of the Fruit Division, Ottawa; Mr. P. J. Carey, Dominion Fruit Inspector, Toronto; and Prof. J. W. Crow, O.A.C., Guelph, were of special value. These experts showed by example how to pack properly, and explained the various steps in detail.

Most of the subjects discussed were of

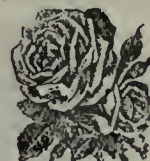
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103 Bus. Fertilizer, 252 Bus.

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Potash, 160 Bus.

This experiment shows an increase of 91 bushels directly due to the application of POTASH

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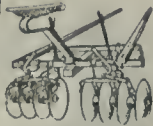
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a most practical nature. One of the greatest annoyances with which fruit growers have to contend is the pilfering of fruit from packages when in the hands of express companies. Mr. W. H. Bunting, of St. Catharines, chairman of the transportation committee, stated that no satisfaction regarding this matter could be obtained from the railway commission. Individual cases might be tried at any of the divisional courts, but in his opinion the matter should be thrashed out between the fruit growers as a body and the express companies. He suggested, and his suggestion was adopted, that the association send a strong resolution to the express companies calling on them to put an end to this nuisance. The matter is of such importance that it will be followed up energetically.

PEACH DISEASES

"The present mode of inspection of diseases of fruit trees is ineffective in dealing with 'little peach' and 'peach yellows,'" said Mr. W. F. Robinson, of Hatchley. Few inspectors appointed as they are at present can deal with these two diseases, which are completely destroying peach orchards in some sections. The association passed a resolution recommending that the Ontario Department of Agriculture appoint special inspectors to look after these two diseases alone.

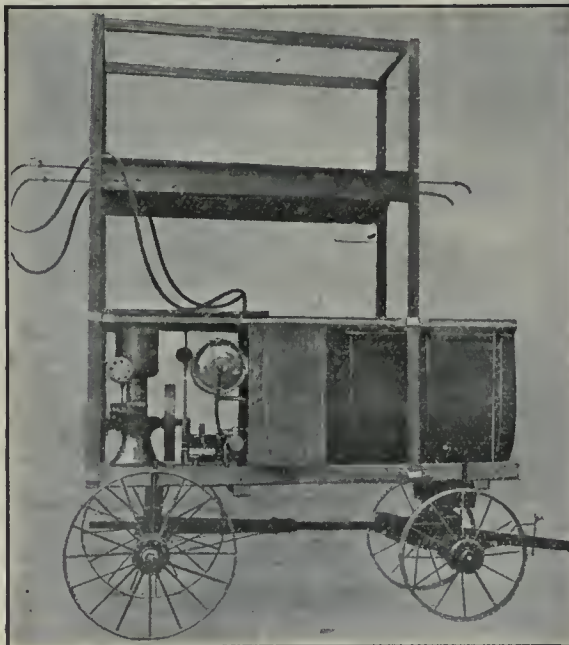
That no reduction should be made in the tariff of fruit coming into this country without first consulting the tariff committee of the fruit growers' association was the subject of a resolution which elicited some keen discussion. That reciprocity of fruit would be an advantage to the Canadian fruit growers was generally acknowledged, but no reduction should be made while the tariff against our fruit going into the United States is as high as it is at present. Resolutions were passed commending the Ontario Department of Agriculture on placing district representatives throughout the province and favoring the rapid extension of this work, and suggesting that lectures be given in public schools particularly in fruit districts, on insects and fungus pests.

The Board of Directors were appointed a committee to look into the advisability of holding a National Apple Show in Ontario next year. It was pointed out by the various speakers that Ontario has a climate which can produce apples unexcelled in quality. If British Columbia can give the greatest apple show yet held in the world, Ontario can do as well and better.

Mr. James E. Johnson, or Simcoe, President of the Association, said that the decline in the apple industry in Ontario was due to the ravages of insects and fungus pests due to lack of care of the orchard, to the apple buyers being willing to take fruit from neglected orchards and to poor inspection of fruit under the Fruit Sales Act, due to lack of funds to carry on the work properly. He suggested that the Ontario Department of Agriculture co-operate with the Dominion Department in the more rigid inspection of fruit.

PRACTICAL ADVICE

A most interesting address was delivered by Mr. B. J. Case, President of the New York State fruit growers' association. "The greatest weakness in farming," said Mr. Case, "is the lack of some good system of keeping accounts." Severe trimming to keep the heads back, the use of low-headed trees, the use of Mammoth Clover as a cover crop, cultivation, fertilization, and thinning of the fruit are essential if we are to get the best results.



This Model C Spramotor was awarded four Gold Medals, two at National Horticultural Congress, one at Dominion Exhibition, St. John, and one at Provincial Exhibition, Halifax, N.S., 1909-1910. "There are reasons."

Mr. J. C. Harris, of Ingersoll, who is using 4 Power Spramotors for eight years, writes about the latest Model C.

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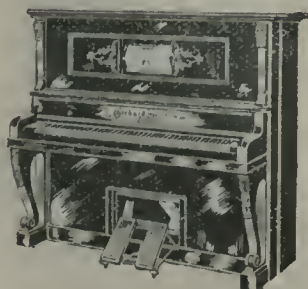
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Mr. Case believed in severe pruning to bring young trees rapidly to a bearing age. In his own orchard Northern Spies have yielded good crops seven years from the time of setting. Valuing apple orchards at \$1,000 an acre, bearing orchards should return ten per cent. on the investment.

OVER PRODUCTION IMPROBABLE

The danger of over production was dealt with by such representative fruit men as Rolt. Thompson, Harold Jones, A. E. Sherrington, G. H. Mitchell, and James A. Johnson. In the opinion of these fruit growers no one need be deterred from improving their old orchards or from setting out young orchards by the fear of over production. There is no such thing as over production of good fruit.

"Profits from My Apple Orchard" was the subject dealt with by R. R. Sloan, Porter's Hill, and J. G. Mitchell, Clarksburg. In this season of small crops, by proper care Mr. Mitchell harvested \$560 worth of fruit from an orchard which had previously yielded only forty barrels. The expense including rent amounted to \$365, leaving a profit of \$195. Mr. Sloan stated that he had old orchards which had given returns as high as \$18 a tree, or \$530 an acre.

"The greatest weakness in co-operative enterprises in the past," said Mr. S. E. Todd, of Petrolia, "has been the lack of some central organization to assist and guide local co-operative concerns. The various associations throughout the province have had no uniformity in their constitutions and have not worked together as they might do to advantage. Centralization of societies explains the success of co-operation in European countries. Very few farmers appreciate the business ability and the expense required to successfully run a co-operative association. The most successful associations are those which pay their managers the highest salaries. If a good manager was secured and paid a good salary the association was almost sure of success.

One of the most important ventures

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made by the fruit growers this year was the shipment of peaches to the British market. This subject was thoroughly discussed by C. A. Dobson, Hamilton, Robt. Thompson, St. Catharines, and W. W. Moore, of the Market Division, Ottawa. With the experience gained this year the experiment will be carried on next year with greater success. Naturally mistakes were made this year, but the most of the shipments arrived in Europe in good condition and brought remunerative prices.

"Standards for the judging of our fruits

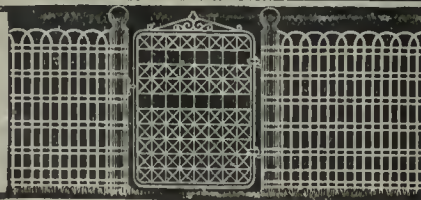
at Exhibitions" was discussed by Harold Jones, of Maitland, and by W. T. Macoun, of Ottawa. Score cards for the judging of fruit at exhibitions were submitted, and

the association decided that these cards should be printed and their use at fruit fairs next year advocated.

The following men were elected to re-

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present the association at the Dominion Conference next fall: Messrs. H. Jones, W. H. Dempsey, R. W. Grierson, James E. Johnson, W. H. Bunting, Robt. Thompson, A. W. Peart, D. Johnson, and E. D. Smith.

Interesting and instructive addresses were also given by R. R. Waddell, Simcoe; W. F. Kidd, Collingwood; M. C. Smith, Burlington; A. D. Campbell, Clarksburg; and L. Ceasar, Guelph, on Lime Sulphur vs. Bordeaux; on Orchard Fertilizers by Professor Harcourt, Guelph; The Orchards of Prince Edward County by M. D. Clark, Wellington; Fire Blight Successfully Combated, by D. H. Jones, Guelph; Cever Crops in the Orchard, by Professor Saxby Blair, Macdonald College; and The Cider Industry, by Louis Meunier, Paris, France. Reports of these addresses will be given in future issues of THE CANADIAN HORTICULTURIST.

New Brunswick Apple Show

Climatic conditions in New Brunswick are quite similar to those existing in this portion of Ontario lying north and east of Kingston. In the southern portions, Spies and even Baldwins, Greenings and Kings are grown to a certain extent, but none of these varieties are recommended for commercial planting in any part of the province. The varieties chiefly in evidence at the recent exhibition of the New Brunswick Fruit Growers' Association in St. John, N.B., and which are particularly recommended as the most suitable to the climate of the province, were Duchess, New Brunswicker, Alexander, Dudley's Winter, Wealthy, Fameuse, McIntosh Red, Wolfe River, Milwaukee, and Bethel.

THE EXHIBITION

The exhibits were very tastefully arranged in the spacious St. Andrews Rink, and the quantity of fruit on exhibit was a decided surprise to those who, like most of the visitors and spectators, had been in the habit of belittling the fruit-growing possibilities of New Brunswick. The provincial department of agriculture displayed four hundred excellently packed boxes of various varieties. Besides these there were entered for competition some eighty boxes, sixty-one barrels, and eight hundred and ninety-six plates.

In quality the exhibits were decidedly good, although some scab was in evidence. A most striking feature—and it is one which never failed to be made particular mention of—was the remarkably high color of the fruit. If the fruit exhibited at St. John is a fair sample of what New Brunswick can grow, it is safe to say Ontario comes in second in the matter of color. Of course, it must be borne in mind that the varieties principally grown in New Brunswick are the highly colored fruits, but even in these varieties New Brunswick fruit would compare very favorably with anything produced in Ontario.

A feature worthy of imitation was the inclusion in the prize list of the scale of points used in judging the various classes, as well as explanations of such terms as "Freedom from blemish," "Uniformity," "Quality," and so forth.

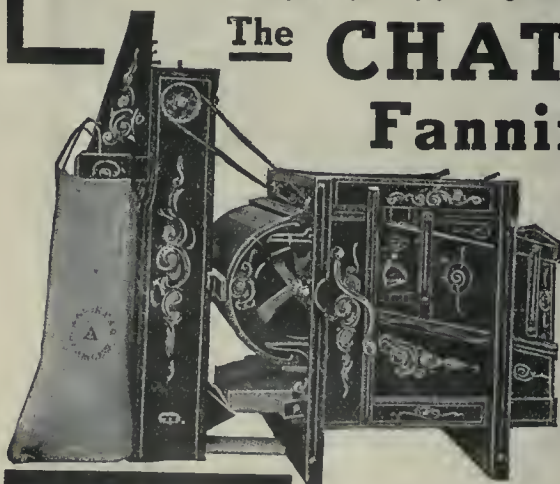
THE CANADIAN HORTICULTURIST has on hand a number of very interesting reports of the annual meetings of the Horticultural Societies in Ontario and covering their work for the past year. The reports of the convention of the Ontario Horticultural Association and of the fruit conventions and exhibitions published in this issue make it impossible for us to deal with these reports in this number.

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